

Using the DDF7001 with an CalAmp Integra Radio Modem

A Technical Application Note from Doppler Systems

06 November 2014

Reference: The software and firmware versions used in this application note are

- MPT User Interface v2.9.5
- TargetTrack 2.16.10
- DDF7001 MPT Direction Finder Firmware 02.27

1.0 Introduction

This application note provides detailed instructions on how to configure the DDF7001 and the TargetTrack software in order to facilitate communications between direction finding sites using a CalAmp Integra Radio Modem.

2.0 How it Works

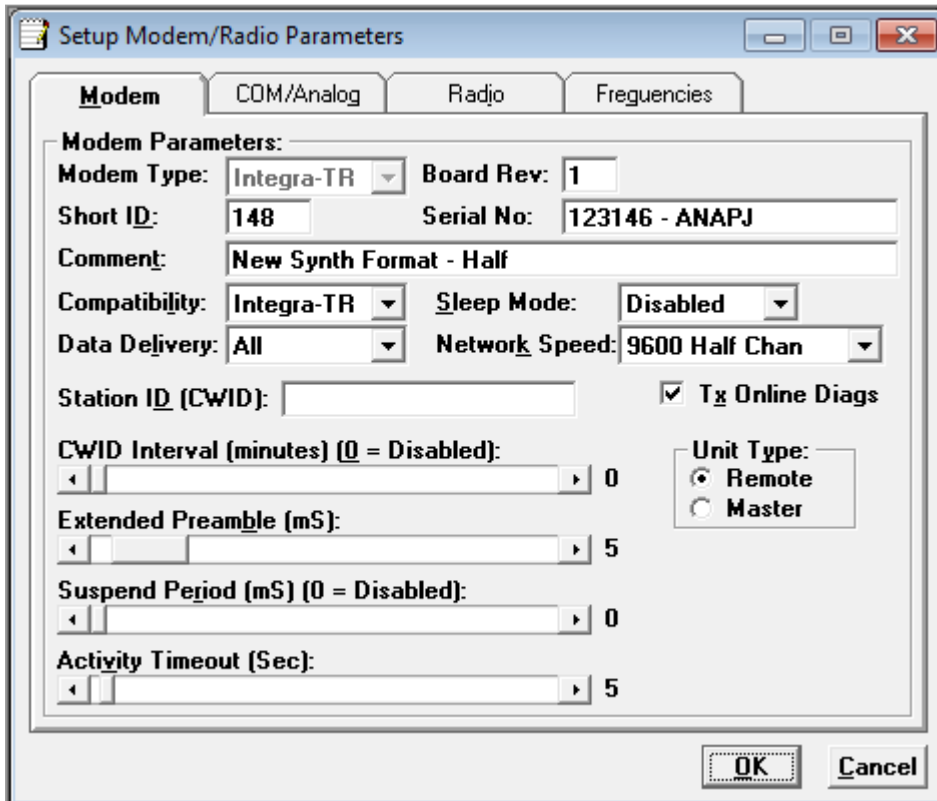
A basic block diagram of a direction finder network communicating with radio modes is shown in Figure 1. One site is configured as a master. The master site must have a computer at the site. All other sites are configured as slaves. A computer may be resident at the slave site; however, a computer is not necessary. The DDF7001 at the slave site can be configured to operate without a computer.

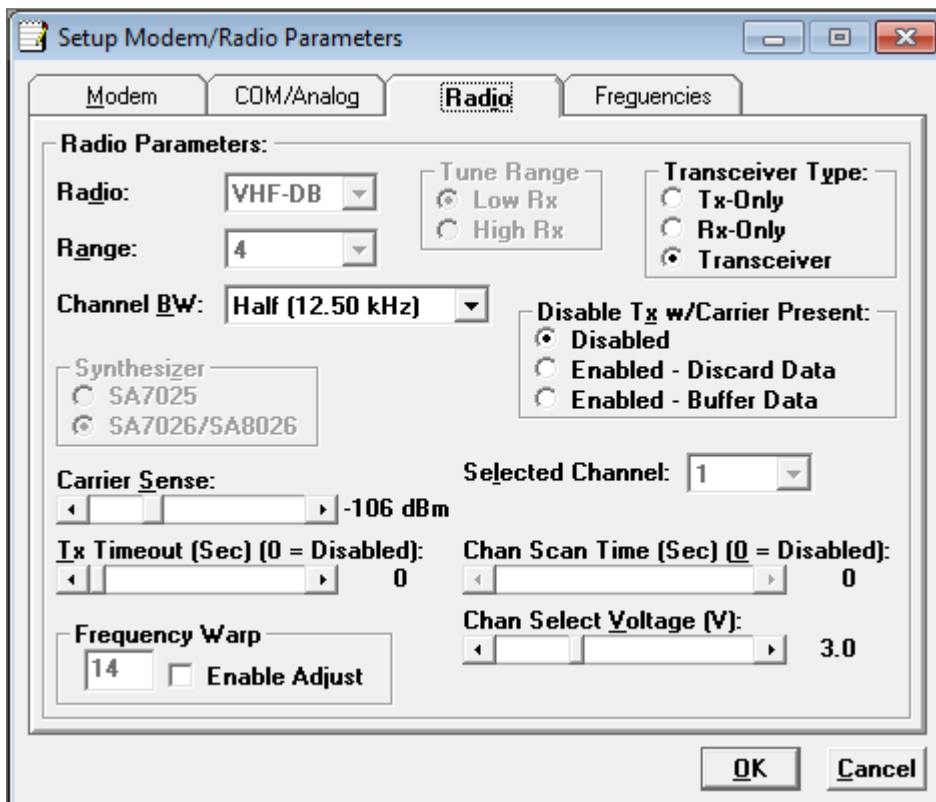
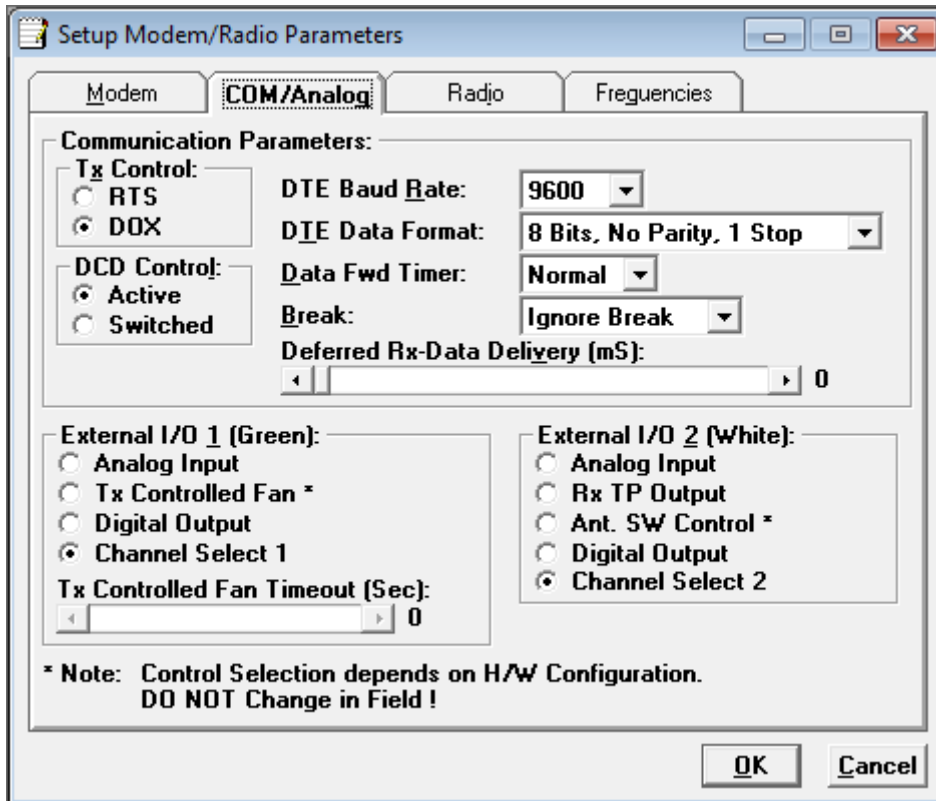
The system is designed as a poll and respond network. The master periodically sends out a polling message and each slave on the network responds to the poll. Upon receipt of a response from the slave, the master assigns the slave a specific time slot in which to respond. In this way no two slaves will transmit simultaneously.

3.0 Configuring the Radio Modem

Note: The radio modems delivered with the DDF7011 and DDF7012 direction finder suites should not require configuration unless the user would needs to change the frequencies to avoid interference.

To configure the radio modems connect a serial cable from a computer to the setup connector on the radio modem. Next run the IntegraTR Programmer software. Press the Read button and wait for the radio modem to upload the parameters into the computer. Then press the ParmS button. The settings should resemble the ones in the screen shots below.





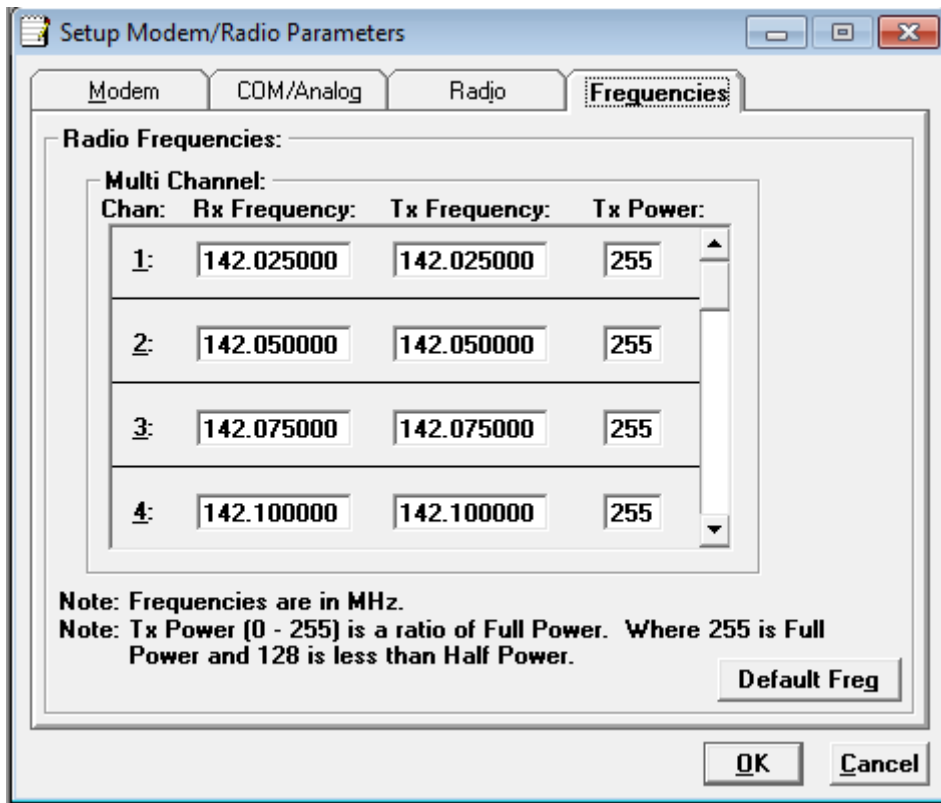
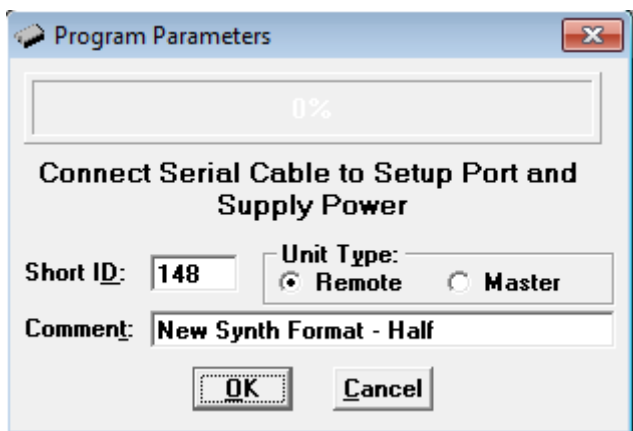


Figure 2: Radio Modem Setup Screen Captures

The frequencies shown are for the VHF version of the radio modem. They will be different if you are using the UHF radio modem.

To change any of the settings simply change them in the software and then press the Program button. The following dialog will be displayed.



Press OK and the software will download the new parameters into the radio modem.

4.0 Configuring a System with Computers at both Master and Slave Locations

Computers at both sites allow operators at each site to view the data from all the sites on the network. The sites can be either fixed or mobile. Using the MPT User Interface software configure the DDF7001 so that the serial port that is connected to the radio modem (Port 0 on the DDF7011 and DDF7012 suites) has a 9600 baud rate and the port is assigned to Radio Modem with Computer. See Figure 3 below.

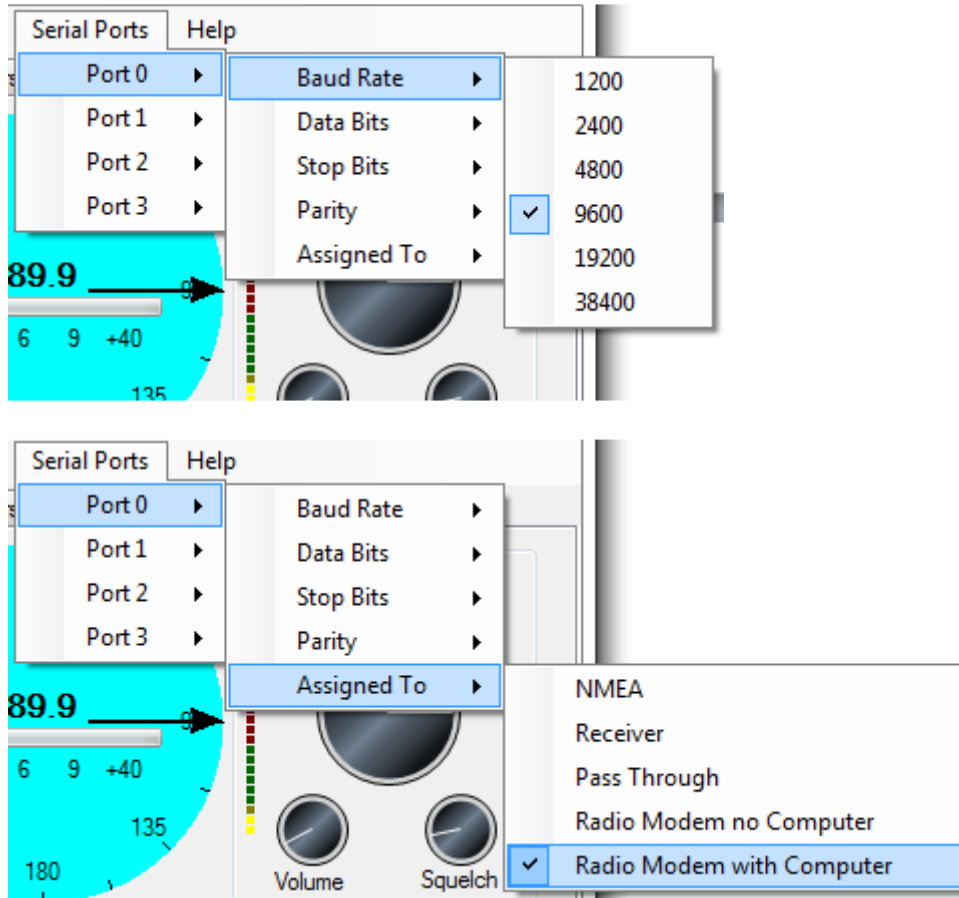


Figure 3: Use MPT User Interface to Configure the Serial Port on the DF Processor

At this point the direction finders are ready to communicate using TargetTrack.

Start TargetTrack on the computers at both sites. Assign one site as master by pressing the Master button and select the COM port on the MPT from Connection->Serial Port as depicted in Figure 4.

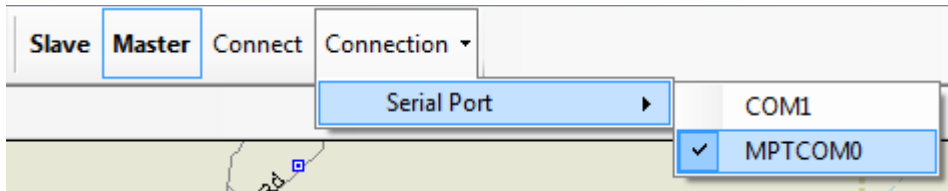


Figure 4: TargetTrack Settings for Master Site

At each of the slave sites press the Slave button. Select the Serial Port for the connection and assign a Network ID to the slave. Each slave on the network must have a unique network ID between 1 and 31. Figure 5 shows typical settings for a slave site.

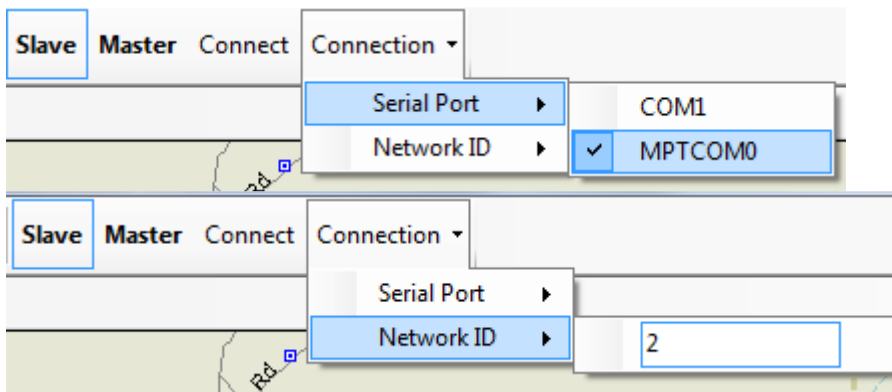


Figure 5: TargetTrack Settings for a Slave Site.

After the slave and master sites are set press the connect button at each of the sites and provided the radio modems are within range the master will connect with the slaves. The slaves will be displayed on the master's screen. The slave screens will display the master's location and data as well as all the slaves' locations and data.

5.0 Configure a System with a Computer at the Master Site and No Computer at the Slave Site

Using the MPT User Interface program configure the serial port for the master exactly as described in Section 4 Figure 3 above. Use a computer to configure the Slave serial port as shown in Figure 6 below.

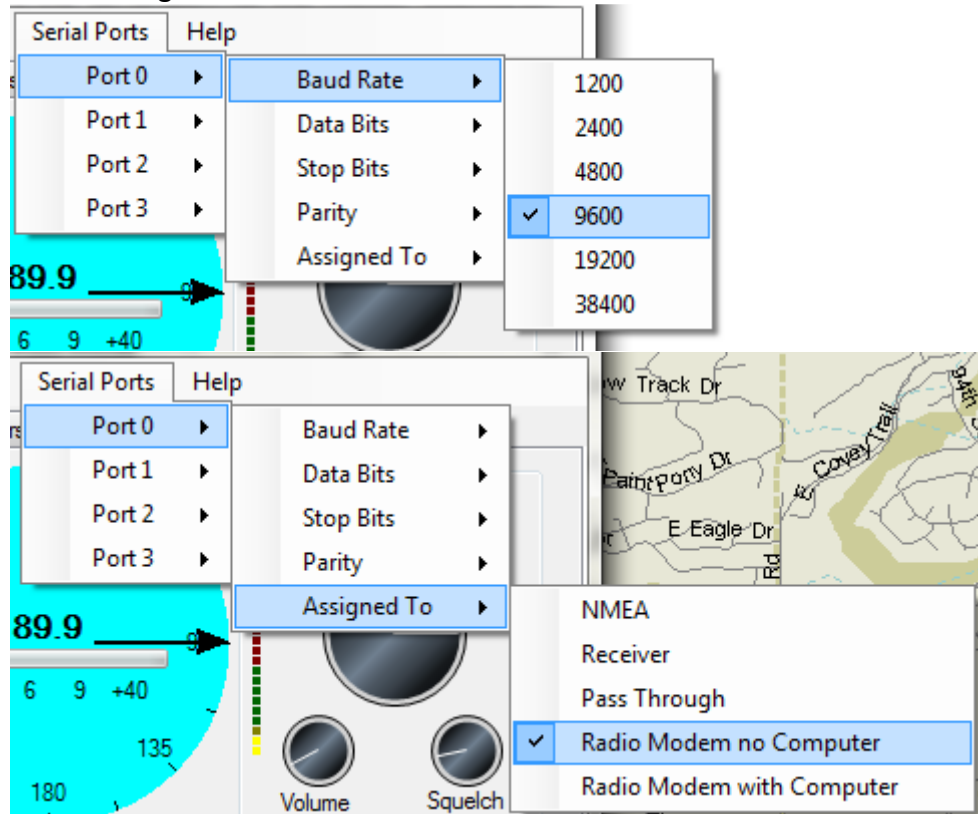


Figure 6: Use MPT User Interface to Set the Slave Processors for Radio Modem no Computer

Next press the Radio Modem tab on the MPT User Interface. A display similar to Figure 7 will be shown. If a GPS unit is connected to the DF processor the Latitude and Longitude will automatically be filled in. If you are not using a GPS at the slave site then enter the latitude and longitude of the slave site. Assign a network ID of between 1 and 31 to the slave site. Each slave site on a radio modem network must have a unique id. After the radio modem settings are set, close the MPT User Interface.

Open TargetTrack at the master location and apply the settings depicted in Figure 4. Press the Connect button and if the radio modems are within range and on the same frequency the master should connect to the slave and the slave data will be displayed on the master's screen.

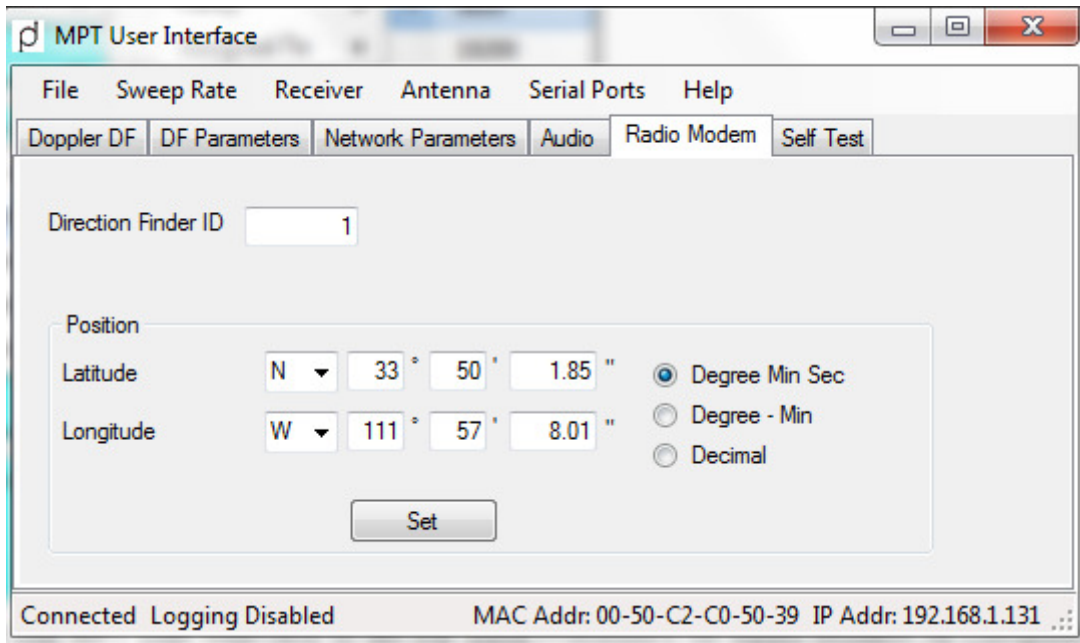


Figure 7: Radio Modem Tab