D-RATS Training (Parts I-IV)
Part IV
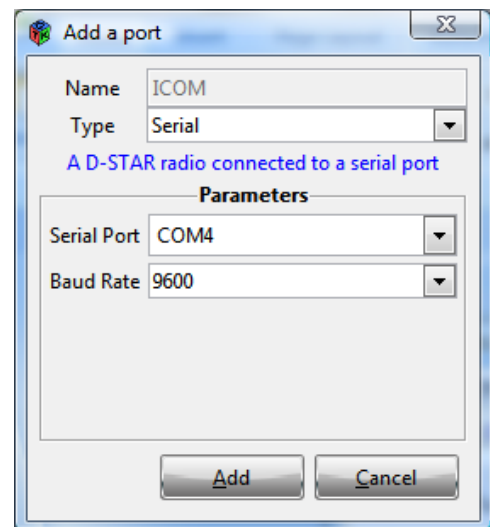
D-RATS Lesson schedule
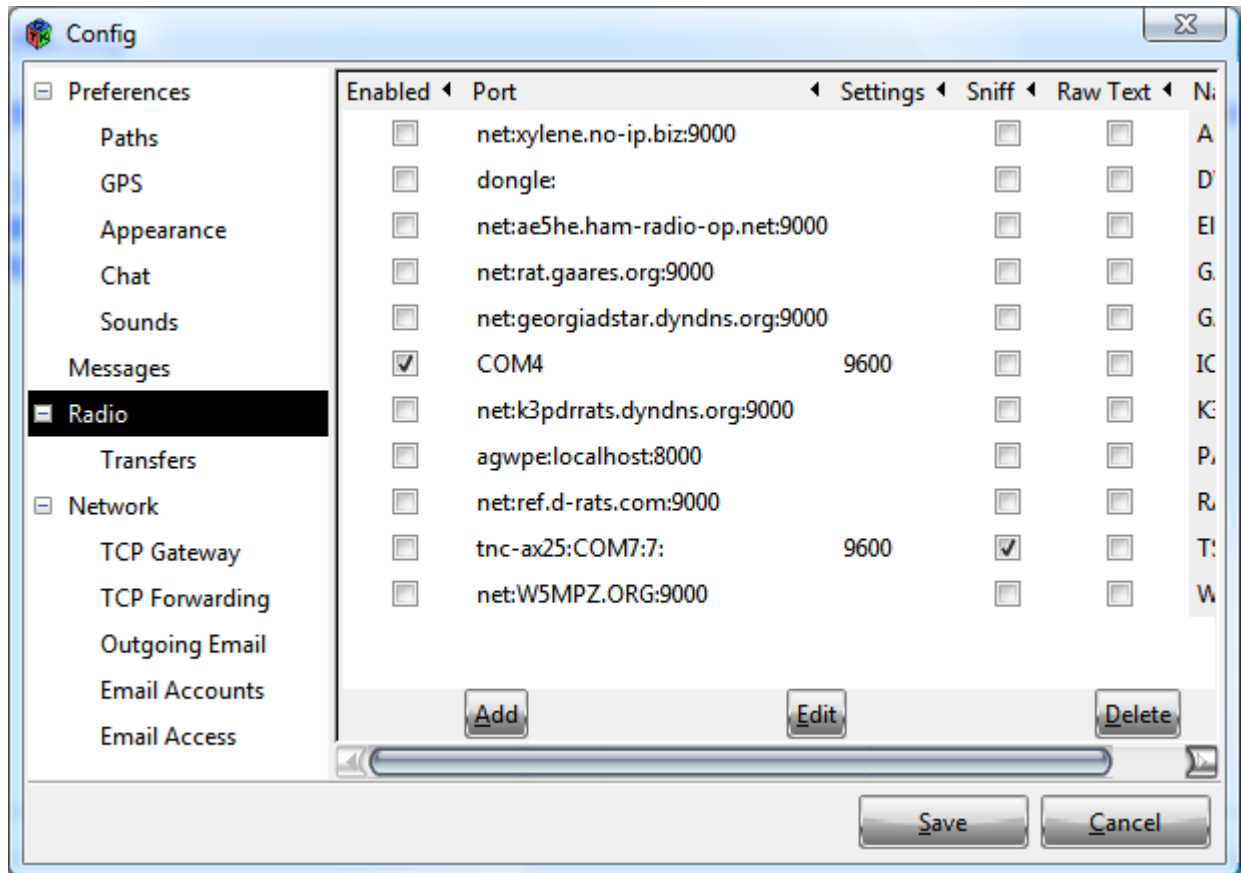
6. RF Segment with D-STAR radios

First, need to add a new "Radio" in Preferences, click Add then (Use "D-RATS Part IV for D-STAR setup V2.DOC").

COM port should be a number 4 or less! Baud rate should be 4800 for ID-31A, 9600 for 2820 and 880H. COM port can be seen in Device Manager, use orange cable connection between computer and D-STAR radio

Check enabled for "ICOM" (or however you labeled it)
Click Save (only enable the radio for initial checkout)

D-Star radio must have low-speed data settings. For example, GPS must be turned off since the low-speed data goes into the same frames as GPS. Chapter 4 in the ID-31A Advanced Instructions show the various menu settings required for low-speed data transmission. For other D-Star radio, search your manual for "low-speed data". For the ID-31A, the settings are:

Set the "GPS SELECT" option to "OFF", (MENU > GPS > GPS Set > **GPS Select, OFF**)
Set the "GPS OUT" option to "OFF", (MENU > GPS > GPS Set > **GPS Out, OFF**)
Set the "GPS TX Mode" option to "OFF",(MENU > GPS > **GPS TX Mode, OFF**)
Configure the serial data communication software as follows.
• Port : The COM port number which is used by the ID-31A/E.
• Baud rate : 4800 bps
• Data : 8 bit
• Parity : None
• Stop : 1 bit
• Flow control : Xon/Xoff

Function > DATA SPEED > 4800

RF Segment with D-STAR radios (continued)

For the ICOM 880H, the settings for low-speed data are:

GPS Tx Off

MENU (R&S) > GPS > (P&S), GPS Tx OFF

DATATx AUTO

MENU > (P&S) > DV SET > MONI (R&S) > DATATx > MONI > AUTO > MONI > MENU

Where R&S means rotate the left dial and select, P&S means push the left dial and select.

Now setup D-STAR radio:

For initial checkout, use Simplex
   a. Pick a repeater frequency and then change offset to 0.0000 (remember to reset after checkout)
   b. Set power output to Low or SLOW.

Test with only one radio
   CHAT>Right Click Station Pane>Clear All
   Right Click Station Pane>Ping All Stations (should see your radio transmit)
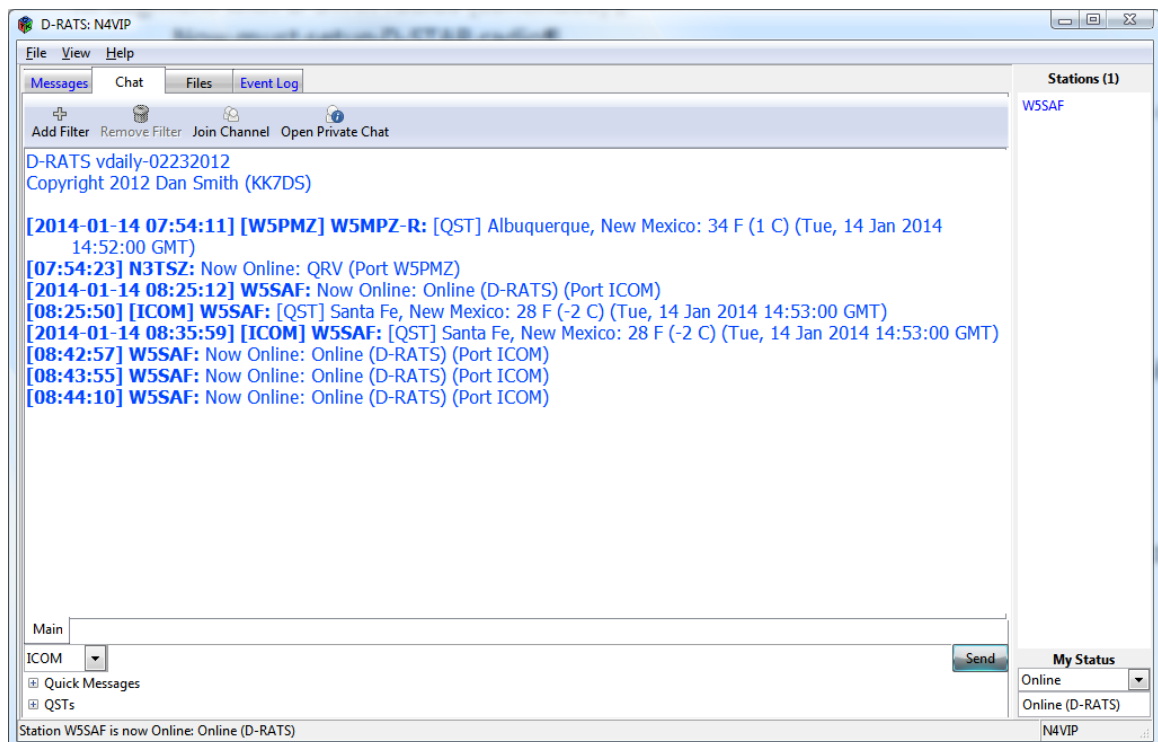   If radio transmits, proper setup

Test with two radios and D-RATS (perform on both radios)
   CHAT>Right Click Station Pane>Clear All
   Right Click Station Pane>Ping All Stations on both (should see both radios transmit)
   Should see other stations call sign in Station Pane but not yours (never yours)
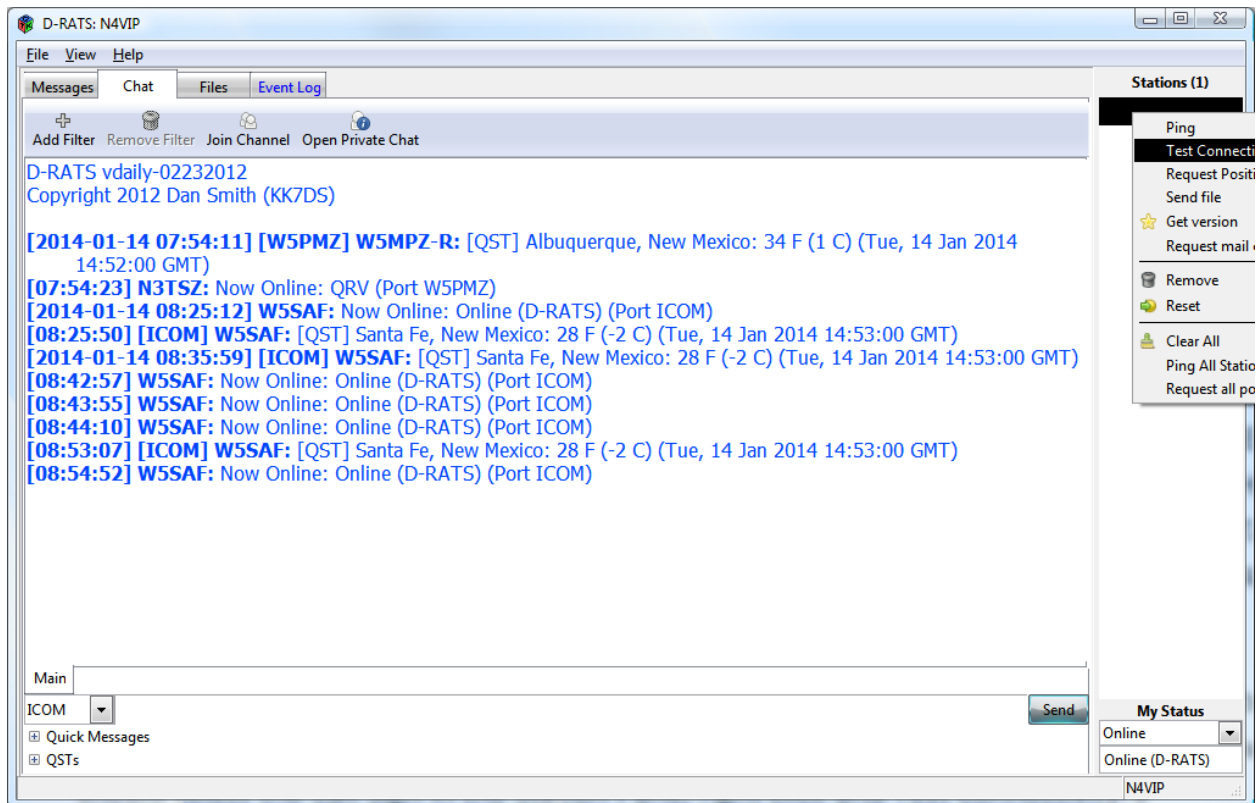
If both Station Panes show other station, RF Segment now established

RF Segment with D-STAR radios (continued)

NOTE: WHEN IN THE RF SEGMENT AND USING A D-STAR RADIO, YOU MUST BE A HAM AND CALL SIGN IN D-RATS MUST BE REGISTERED! IN SIMPLEX, IT WILL WORK WITHOUT A CORRECT CALL SIGN BUT YOU ARE VIOLATING FCC RULES. TO USE A REPEATER OR REFLECTOR, CALL SIGN MUST BE REGISTERED AT ONE (AND ONLY ONE) D-STAR REPEATER. ONCE REGISTERED IN A D-STAR REPEATER, THE US TRUST SYSTEM VERIFIES THAT YOUR CALL SIGN IS LEGITITMATE BEFORE ALLOWING YOUR D-STAR RADIO TO TRANSMIT THROUGH ANY REPEATER OR THROUGH A REPEATER AND INTO A D-STAR GATEWAY, I.E. INTO THE INTERNET.

Once RF Segment established, you can do anything in the RF Segment you can do via internet, i.e. CHAT, FILES, MESSAGES. However, you must have a good RF link. To check RF link between two stations, you should select the Call Sign in the Station Pane, right click and Test Connectivity.
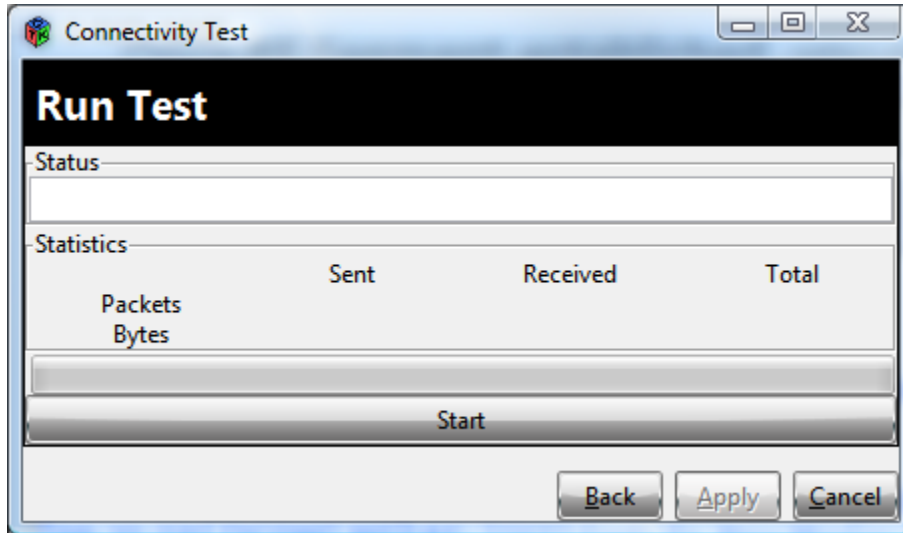
RF Segment with D-STAR radios (continued)

Click Start, 10 packets are sent and received and at the end of 10 you will receive a percentage. 70% is OK, 80% is better and 100% is a very good link. 80% or better should allow the RF segment to function properly.

7. Trouble shooting

1. CHAT
   a. Nothing in the Station Pane
      i. check Preferences to ensure you have checked the correct "Radio"
      ii. check lower left CHAT pull down to see that you have selected the correct Radio
      iii. Right click in Station Pane to Ping All Stations
      iv. If nothing above works, check to see if you are connected to Internet
   b. Other stations not receiving your sent Chats
      i. Check that you are sending to the correct "Radio", check lower left pull down
   c. Don't see chats in Main Window
      i. Check for filter or channel window, remove filter if necessary

2. FILES
   a. Don't see your list of shared files, check Preferences to be sure File Transfer Path is defined
   b. Don't see a list of shared files for other station, check Port and Station Name show in upper right pull downs and that you have connected

3. MESSAGES
   a. FOR ALL TROUBLES WITH MESSAGES, FIRST CHECK THAT YOU CAN SEND OUT AN EMAIL TO YOURSELF (GOES TO OUTBOX) AND RECEIVE IT BACK (GOES INTO INBOX). IF THIS DOESN'T WORK, NOTHING WILL
   b. ALSO CHECK THAT YOU ENTERED YOUR CALL SIGN IN EMAIL ACCESS IN PREFERENCES
   c. Messages sit in the Outbox but don't go out, check that you have entered correct name and password for SMTP (Outgoing Email in Preferences)

d. Nothing appears in the INBOX when you are certain traffic has been sent to you, check that you have entered correct name and password for POP (Email Accounts in Preferences)

e. WL2K messages don't leave the Outbox, check that you prefaced email with WL2K:

4. MAPS

a. No Data appears when you use the Map Function, have you made your initial Map Download?

b. Overlays that you have created or are using don't show, ensure that the Overlay is checked in the lower left pane.

5. RF Segment

- Low speed data communications
  - o GPS must be turned off (there are several settings depending on ICOM model)
  - o Data TX must be Auto (NOT PTT)
- Test connectivity, 80% or better between stations is necessary

8. Resources

1. D-RATS Training Farmington.DOC
2. Gmail accounts for D-RATS.TXT
3. WINLINK accounts for D-RATS.TXT
4. D-RATS_Operating_Guide_Addendum _02232012.PDF
5. Email showing up in you Outbox in D-RATS.DOC
6. D-RATS&GmailIV.PDF
7. D-RATS configuration Part I Rev 1.DOC
8. D-RATS configuration Part II Rev 1.DOC
9. Key NM SAR Ham Repeaters.CSV
10. D-RATS Creating Static Overlays.PDF
11. D-RATS Installing spelling support.PDF
12. D-RATS_and_packet_radio-The_Third_Way.PDF
13. D-RATS_Basic_E-mail_Procedures.PDF
14. D-RATS_operating_guide_0.3.3.PDF