D-RATS Training (Parts I-IV) Part IV

D-RATS Lesson schedule

- 1. D-RATS Installation and Configuration Part I
- 2. CHAT Part I
- 3. FILES Part I
- 4. MESSAGES Part II
- 5. MAP including Map Downloader Part III
- 6. RF Segment with D-STAR radios Part IV
- 7. Trouble shooting Part IV
- 8. Resources Part IV

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

🔞 Add a port 🛛 🕅 🕅					
Name	ICOM				
Туре	Serial 💌				
A D-STAR radio connected to a serial port					
Parameters					
Serial Port	COM4 💌				
Baud Rate	9600 💌				
<u>A</u> dd <u>C</u> ancel					

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

🔞 Config					2	X)	
Preferences	Enabled 4	Port •	Settings 4	Sniff ◀	Raw Text 4	Ni	
Paths		net:xylene.no-ip.biz:9000				A	
GPS		dongle:				D'	
Appearance		net:ae5he.ham-radio-op.net:9000				EI	
Chat		net:rat.gaares.org:9000				G.	
Sounds		net:georgiadstar.dyndns.org:900	0			G.	
Messages	V	COM4	9600			IC	
🔳 Radio		net:k3pdrrats.dyndns.org:9000				ĸ	
Transfers		agwpe:localhost:8000				Pi	
Network		net:ref.d-rats.com:9000				R	
TCP Gateway		tnc-ax25:COM7:7:	9600	1		T!	
TCP Forwarding		net:W5MPZ.ORG:9000				w	
Outgoing Email							
Email Accounts							
Email Access		<u>Add</u>	it		Delete	_	
<u>Save</u> <u>Cancel</u>							

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

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

🖗 D-RATS: N4VIP					
Eile View Help					
Messages Chat Files Event Log	Stations (1)				
Add Filter Remove Filter Join Channel Open Private Chat	W5SAF				
D-RATS vdaily-02232012 Copyright 2012 Dan Smith (KK7DS)					
 [2014-01-14 07:54:11] [W5PMZ] W5MPZ-R: [QST] Albuquerque, New Mexico: 34 F (1 C) (Tue, 14 Jan 2014 14:52:00 GMT) [07:54:23] N3TSZ: Now Online: QRV (Port W5PMZ) [2014-01-14 08:25:12] W5SAF: Now Online: Online (D-RATS) (Port ICOM) [08:25:50] [ICOM] W5SAF: [QST] Santa Fe, New Mexico: 28 F (-2 C) (Tue, 14 Jan 2014 14:53:00 GMT) [2014-01-14 08:35:59] [ICOM] W5SAF: [QST] Santa Fe, New Mexico: 28 F (-2 C) (Tue, 14 Jan 2014 14:53:00 GMT) [08:42:57] W5SAF: Now Online: Online (D-RATS) (Port ICOM) [08:43:55] W5SAF: Now Online: Online (D-RATS) (Port ICOM) [08:44:10] W5SAF: Now Online: Online (D-RATS) (Port ICOM) 					
Main					
ICOM V	My Status				
B Quick Messages	Online 🔻				
B QSTs	Online (D-RATS)				
Station WSSAF is now Online: Online (D-RATS)	N4VIP				

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.



Connectivity Test			
Run Test			
-Status			
-Statistics			
	Sent	Received	Total
Packets			
Bytes			
	S	Start	
		<u>B</u> ack	Apply Cancel

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
 - $\circ~$ GPS must be turned off (there are several settings depending on ICOM model)
 - \circ $\,$ 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
- D-RATS configuration Part I Rev 1.DOC

- 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_Email_Procedures.PDF
- 14. D-RATS_operating_guide_0.3.3.PDF