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D-STAR DATA AND D- RATS

Data on D-STAR

- Data and voice are transmitted simultaneously
- D-STAR provides two ways to transmit data
 - 1200 baud data on 2m, 70cm and 23cm
 - 128 Kb data on 23 cm band
- Data can be used on simplex, through repeaters and across linked repeaters

What can D-STAR data do?

● Low speed data

- Send GPS position data
- Simple keyboard-to-keyboard data
- Available software adds messaging and file transfer functions

● High speed data

- Faster speed for file transfer
- Internet connectivity through DD repeaters
- Photo file transfer
- Ethernet bridging

D-STAR Low Speed Data Basics

- ⦿ Data and Voice occupy every transmission
 - 4800 bits per second digital stream
 - 2400 bits allocated for voice
 - 1200 bits for Forward Error Correction (FEC)
 - 1200 bits allocated for data
- ⦿ Every D-STAR radio has a serial port included
- ⦿ One cable connects radio to PC (no TNC req'd)
- ⦿ Works simplex or through repeaters and reflectors
- ⦿ When using data programs, disable GPS

What is D-RATS?

- D-RATS is a free, easy to use, multi-platform data communications package that provides messaging, email, file transfer, mapping and position reporting written by Dan Smith, KK7DS

Why Use D-RATS?

- D-RATS can be used for simple data communications between one or more stations
- Can be used to support Emergency Communications
- Can be used for displaying positions of D-STAR equipped stations

Who Can Use D-RATS?

- Multi-platform

- Windows (2000, XP, 7)
- Mac OS
- Linux

- Multiple Interfaces

- D-STAR Radio
- Internet connection
- DV Dongle
- KISS TNC (support AX.25 protocol)

D-RATS Functions

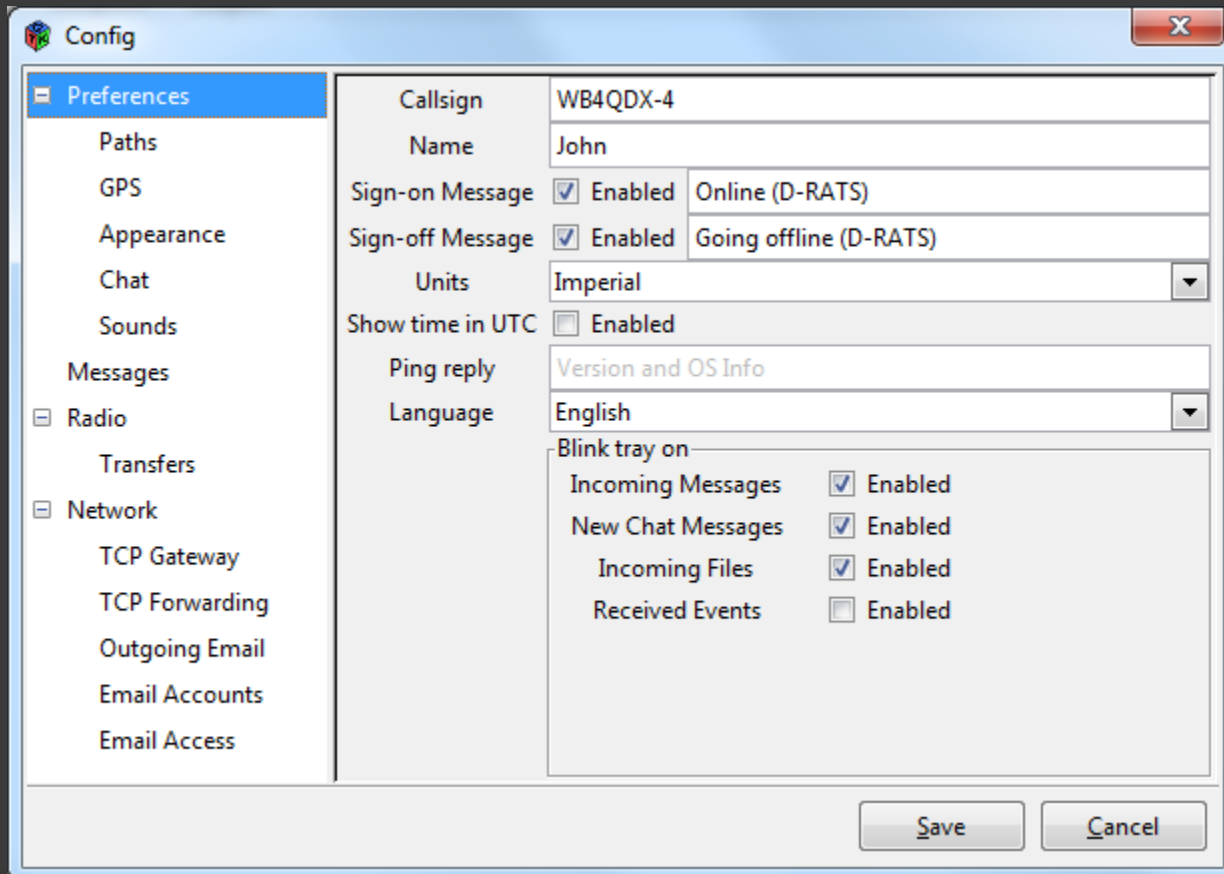
- **Messaging** – radio messages, forms, email, Winlink 2000
- **Chat** – quick, simple keyboard-to-keyboard, multi-user, private channels
- **File Transfer** – unattended file sharing, upload/download from common shared site
- **Mapping/Position Reporting** – map download, GPS position reporting on map

Getting Started With D-RATS

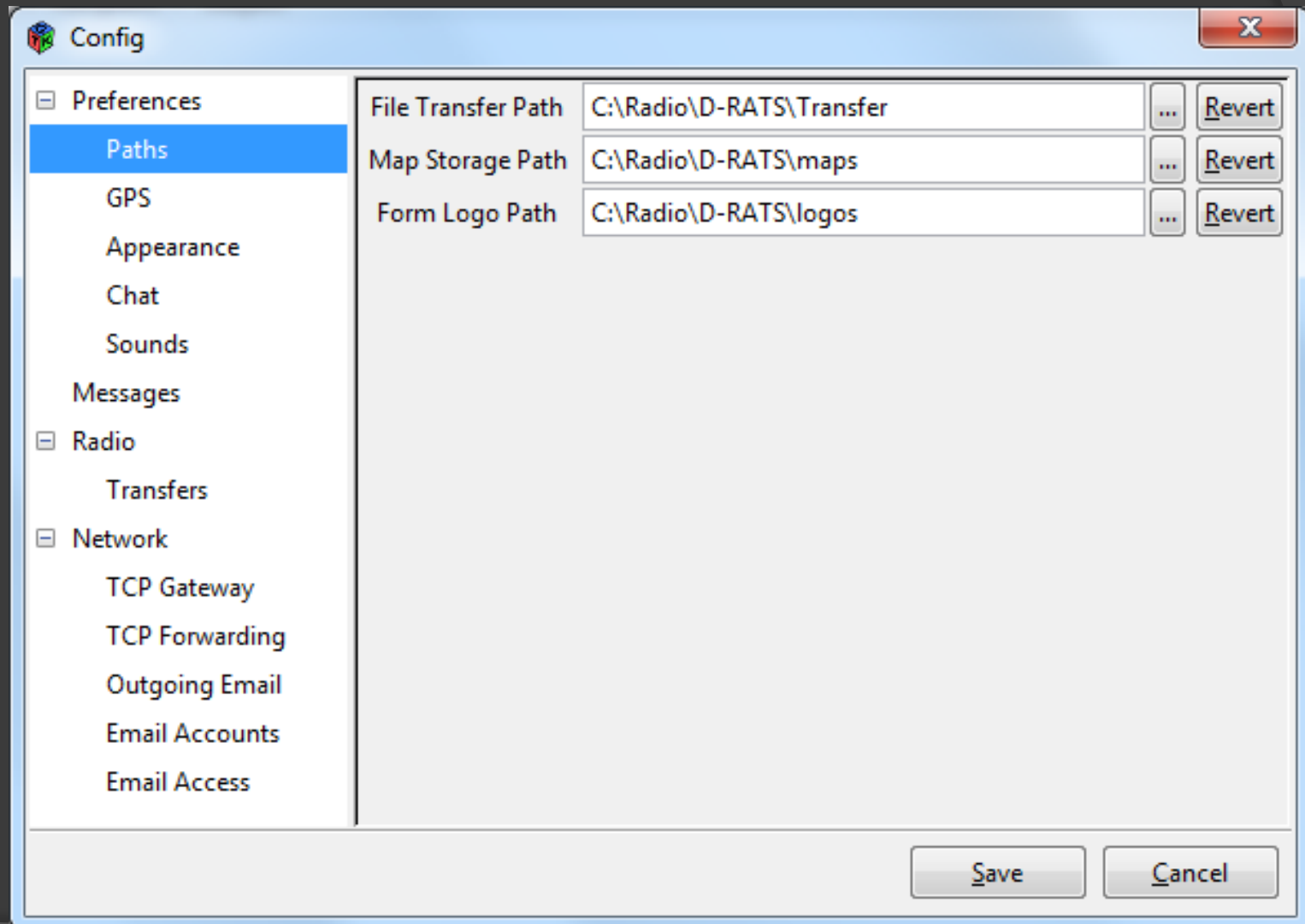
- Download and install latest version
 - www.d-rats.com/download
 - Current version – 0.3.3
- Setup preferences
 - File / Preferences (General station information)
 - File / Preferences / Radio (Com ports)

Setup – General Info

- Use callsign or tactical call for EmComm



Setup -Paths



Setup - Radio

- Configure radios, Ratreflectors, TNCs

The screenshot shows the 'Config' application window with the 'Radio' section selected in the left sidebar. The main area displays a table of radio configurations. The 'Add a port' dialog box is open, showing fields for Name, Type (Serial), Serial Port (COM1), and Baud Rate (9600). The dialog also includes a note: 'A D-STAR radio connected to a serial port' and a 'Parameters' section.

Enabled	Port	Settings	Sniff	Raw Text	Name
<input type="checkbox"/>	net:gtworks.dyndns.org:9000		<input type="checkbox"/>	<input type="checkbox"/>	ARES Rat - Pu
<input checked="" type="checkbox"/>	net:fl-eoc2.dyndns.org:9000		<input type="checkbox"/>	<input type="checkbox"/>	Florida EOC
<input type="checkbox"/>	COM1	9600	<input type="checkbox"/>	<input type="checkbox"/>	IC-2820H
<input type="checkbox"/>	COM1	38400	<input type="checkbox"/>	<input type="checkbox"/>	IC-92AD
<input type="checkbox"/>	COM1	19200	<input type="checkbox"/>	<input type="checkbox"/>	ID-1
<input type="checkbox"/>	net:ref.d-rats.com:9000		<input type="checkbox"/>	<input type="checkbox"/>	RAT
<input type="checkbox"/>	net:192.168.1.52:9000		<input type="checkbox"/>	<input type="checkbox"/>	RAT-Local
<input type="checkbox"/>	tnc-ax25:COM1:0:LAW	9600	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	WB4QDX-2

Add a port

Name:

Type:

A D-STAR radio connected to a serial port

Parameters

Serial Port:

Baud Rate:

Messaging

- Used to send/receive messages between stations, Internet email users
- Familiar email look and feel
- Message can be email, form or memo format
- Standard forms included (ICS-213, radiogram), create custom forms easily
- Station to station – can use callsign or tactical call for addressing
- Send and receive to Internet email addresses
- Compatible with Winlink 2000 addresses
- Supports attachments (small file size recommended)

Messaging Screen

The screenshot shows a messaging application window titled "D-RATS: WB4QDX-4". The interface includes a menu bar (File, View, Help), a toolbar with icons for New, Forward, Reply, Delete, Mark Read, Mark Unread, and Send/Receive, and a list of messages. The messages list has columns for Sender, Recipient, Subject, Type, and Date. Two messages are visible, both from WB4QDX-4 to WB4QDX-4 with the subject "Test message".

On the right side, there is a "Stations (16)" list containing the following call signs: IW5BVM, 9A6AIB-5 (1m), 9Z4CG-1 (1m), W4KTJ (1m), KG4Q (1m), N1KXJ (1m), N1RCW (1m), 9Y4PJ (1m), IK5PWA-L (1m), LA2MQ (1m), VE7AAT (1m), ON2AAV (1m), IW2OHX-L (1m), ON0THN (1m), OE1OWA (1m), and N1SO D (1m). Below this list is a "My Status" section with a dropdown menu set to "Online" and a label "Online (D-RATS)".

At the bottom of the window, a status bar displays "Station IW5BVM is now Online: Online (D-RATS)" and "WB4QDX-4".

Sender	Recipient	Subject	Type	Date
WB4QDX-4	WB4QDX-4	Test message	email	10:18:37 2011-04-20
WB4QDX-4	WB4QDX-4	Test message	email	10:14:09 2011-04-20

Chat

- Chat provides broadcast messages
- Can filter on strings (callsign, keywords, etc.)
- Channels provide “chat rooms” off main channel
- Private chat with specific stations

Chat Screen

The screenshot shows a chat window titled "D-RATS: WB4QDX-4". The window has a menu bar with "File", "View", and "Help". Below the menu bar are tabs for "Messages", "Chat", "Files", and "Event Log". The "Messages" tab is active, showing a list of messages. The messages are timestamped and include the name of the sender and their status. The messages are:

- [10:18:08] ON0THN: Now Online: Online (D-RATS) (Port RAT)
- [10:18:08] OE1OWA: Now Online: Online (D-RATS) (Port RAT)
- [10:18:09] VE7AAT: Now Unattended: Online (D-RATS) (Port RAT)
- [10:18:09] ON2AAV: Now Online: on2aav online D-rats (Port RAT)
- [10:18:09] IW2OHX-L: Now Online: Online (D-RATS) (Port RAT)
- [10:18:10] N1RCW: Now Unattended: Online (D-RATS) (Port RAT)
- [10:18:10] 9Y4PJ: Now Online: Online (D-RATS) (Port RAT)
- [10:18:10] IK5PWA-L: Now Online: Online (D-RATS) (Port RAT)
- [10:18:10] LA2MQ: Now Online: Online (D-RATS) (Port RAT)
- [10:18:11] 9Z4CG-1: Now Online: Online (D-RATS) (Port RAT)
- [10:18:11] W4KTJ: Now Online: Online (D-RATS) (Port RAT)
- [10:18:11] KG4Q: Now Unattended: Online (D-RATS) (Port RAT)
- [10:18:11] N1KXJ: Now Unattended: Online (D-RATS) (Port RAT)
- [10:18:13] 9A6AIB-5: Now Unattended: Robert in Zagreb - Croatia - JN85AT (Port RAT)
- [10:19:34] IW5BVM: Now Online: Online (D-RATS) (Port RAT)
- [10:20:36] [RAT] ON0THN: [QST] ON0THN Radio club Thuin relai Dstar sur 439.4875 shift -7600 centre formation on3 - Harec
- [10:22:21] [RAT] N1RCW: [QST] Cape Cod Area D-Rat's open server, Connect to n1rcw.org Port 9000
- [10:24:40] [RAT] N1SO D: [QST] Belfast, Maine
- [10:25:17] [RAT] IW2OHX-L: IW2OHX D-Rats Rat Flector net:ref.iw2ohx.net:9000 - Authorization required

At the bottom of the chat window, there is a text input field with "Main #ARES" and a "Send" button. There are also checkboxes for "Quick Messages" and "QSTs".

On the right side of the window, there is a "Stations (16)" list showing the status of various stations:

- IW2OHX-L
- N1SO D
- N1RCW (2m)
- ON0THN (4m)
- IW5BVM (5m)
- 9A6AIB-5 (7m)
- 9Z4CG-1 (7m)
- W4KTJ (7m)
- KG4Q (7m)
- N1KXJ (7m)
- 9Y4PJ (7m)
- IK5PWA-L (7m)
- LA2MQ (7m)
- VE7AAT (7m)
- ON2AAV (7m)
- OE1OWA (7m)

At the bottom right, there is a "My Status" section with a dropdown menu showing "Online" and "Online (D-RATS)". The window title bar shows "WB4QDX-4".

File Transfer

- Allows unattended file transfers between stations
- View remote station files
- File transfers use error checking
- All file formats supported

File Transfer Screen

D-RATS: WB4QDX-4

File View Help

Messages Chat Files Event Log

Refresh Delete Upload Local

Connect Disconnect Download

Station: 9A6AIB-5 RAT

Filename	Size	Date
660_ACD_LOGGER.wax	1.1 KB	17:57:54 2010-10-30
9A6AIB-Ports-2010-12-19.txt	2.0 KB	17:20:08 2010-12-19
9A6AIB_Ratreflector_list_2010-12-19.txt	1.0 KB	16:59:25 2010-12-19
BD2139-Donna-inutile.jpg	61.0 KB	13:51:20 2011-01-22
Chr-9A-win.txt	14 B	21:25:29 2010-12-13
D-RATS on Dongle.doc	27.0 KB	20:40:56 2010-12-22
D-RATS operating guide.doc	597.0 KB	23:28:03 2010-12-07
D-RATS_User_Manual.pdf	624.0 KB	23:06:06 2010-12-07
Icom_cables.pdf	21.0 KB	23:19:10 2010-12-05
Interface_cable_for_the_On[1].pdf	26.0 KB	07:26:26 2010-12-13
Kenwood Connector.pdf	283.0 KB	22:50:19 2010-12-07
Mobile_1200MHzant.pdf	82.0 KB	07:27:50 2010-12-30
Operating with D-RATS.doc	305.0 KB	23:28:20 2010-12-05
Ratreflector_list.txt	910 B	07:28:31 2010-12-30
resized_badbananas.jpg	9.0 KB	07:22:22 2010-12-30
resized_donotdisturb.jpg	10.0 KB	07:23:39 2010-12-30
resized_resized_Ohmslaw.jpg	15.0 KB	00:25:19 2011-04-09
Test.txt	38 B	10:29:27 2011-02-11

Stations (19)

- 9A6AIB-5
- VE7UG
- N1RCW (1m)
- N1KXJ (2m)
- N1SO D (2m)
- LA2MQ (2m)
- KG4Q (4m)
- 9Z4CG-1 (9m)
- ON0THN (9m)
- OE1OWA (9m)
- IW2OHX-L (9m)
- ON2AAV (9m)
- VE7AAT (9m)
- W4KTJ (9m)
- IK5PWA-L (9m)
- KB3ONM (9m)
- KB3ONM-2 (9m)
- 9Y4PJ (13m)
- IW5BVM (20m)

My Status

Online

Online (D-RATS)

Connected to 9A6AIB-5

WB4QDX-4

Mapping/Position Reporting

- Uses GPS location transmitted over low speed data channel
- Uses GPS or GPS-A message formatting
- Maps are available for all areas for download
- Labels location with callsign
- Updates real time

Mapping Screen

D-RATS Map Window

Map

Station

Show	Station	Latitude	Longitude	Distance	Direction
<input checked="" type="checkbox"/>	Stations				
<input checked="" type="checkbox"/>	WB4QDX-4	34.7255	-86.5894	0.00	0.00
<input checked="" type="checkbox"/>	9A6AIB-5				

Zoom (11)

Min Max

Track center

Static position

34.7761, -86.5379