D-RATS

INTEGRATED SOFTWARE FOR EMERGENCY COMMUNICATIONS

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ARES MOTIVATION

- During EOC and SAR Comm activations, need voice and digital modes
- For digital, need as few software programs as possible (1), i.e. need an agreed upon standard
- There are many available programs, each with advantages and disadvantages
- Basic digital needs:
  - Chat – instant messaging for all and/or tactical areas, e.g. EOC, IB
  - Messaging – Email, WL2K, SMTP servers
  - File Transfer – not extension limited
  - Use of standard forms, e.g. ICS 213
  - Positional awareness
- Use internet and/or RF segment

- Can D-RATS satisfy the needs?

D-RATS OVERVIEW

What is it? - A multi-platform integrated tool for emergence communications
Variety of data transmission methods supported, including:

- Instant-message chat
- Automatic beacon messages
- Messaging including E-mail
- File transfers with error detection
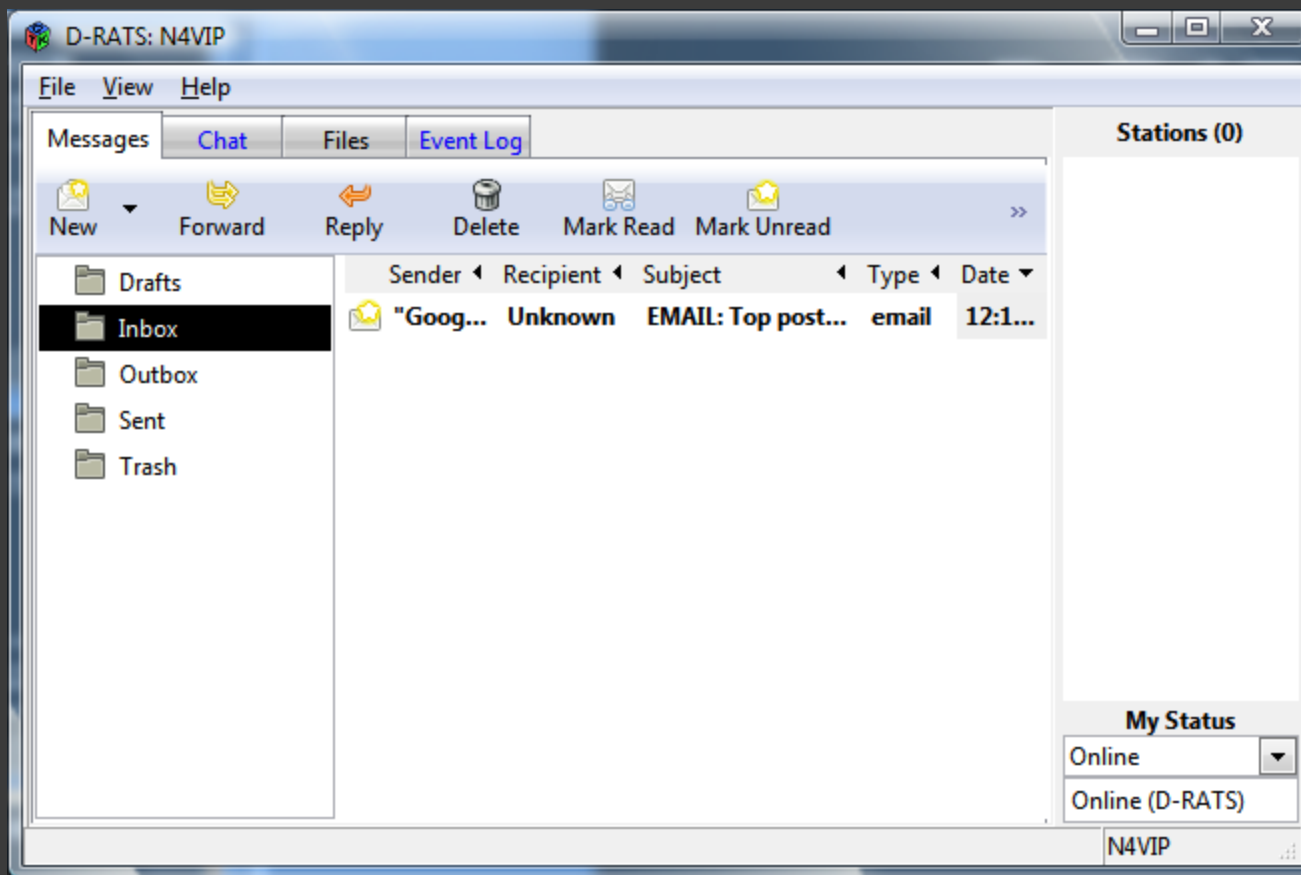- Structured forms – ICS Forms supported
- GPS position reports

What else can it do?

- Error-free file transfers with a single sender and multiple receivers
- Multi-tab filtering and logging of traffic
- Integrated offline station mapping support with freely-available map data
- Network linking capability for bridging RF segments with a conventional network
- Runs natively on Linux, Windows, and MacOSX
- Freely-available, Open-source

Developed by Dan Smith, KK7DS
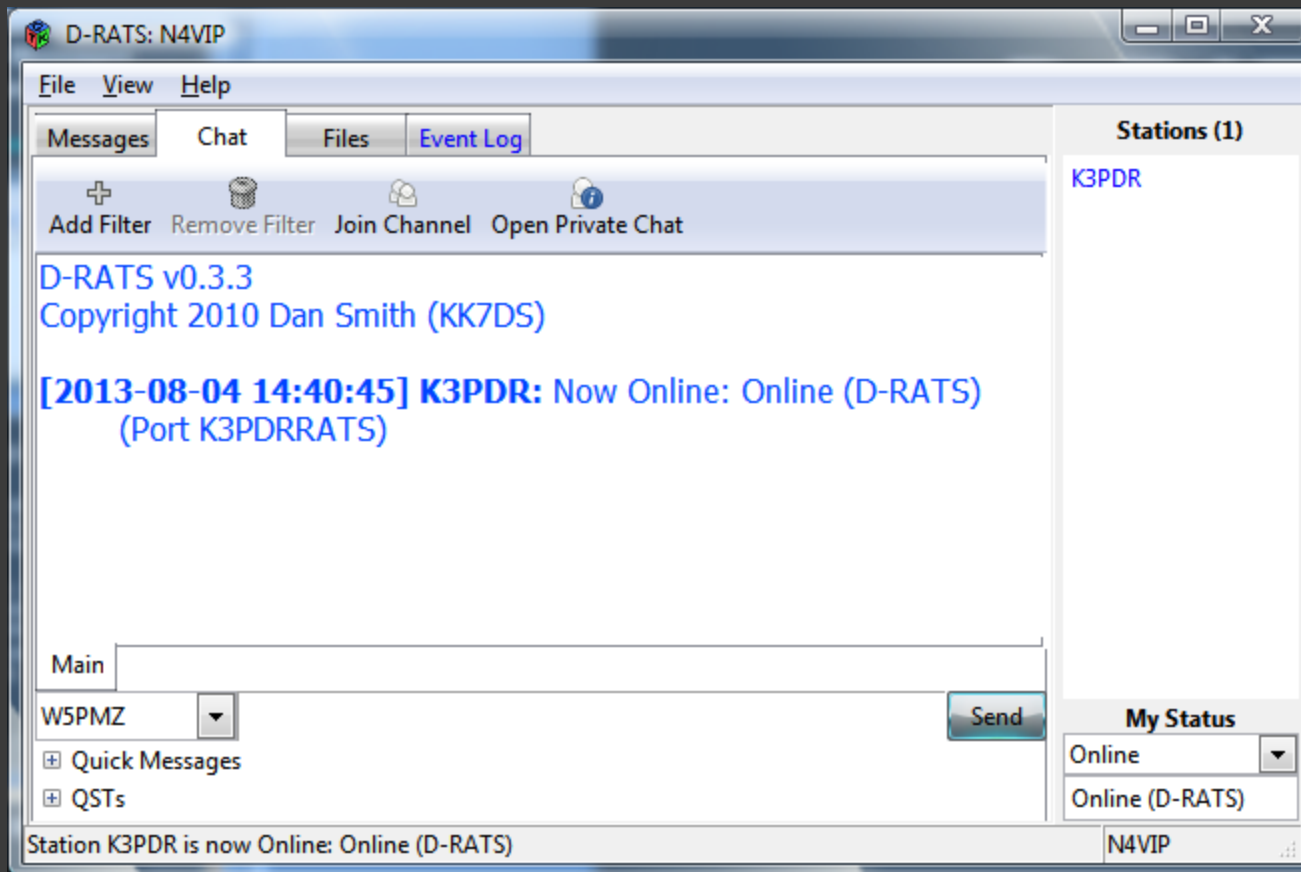
D-RATS Main & Messages Windows

D-RATS software is free, go to http://www.d-rats.com/, download Ver 3.3 and documentation

Messages

- Email gateway
  - SMTP for outgoing emails
  - Rich forms go as HTML emails
  - POP3 gateway for remote mail checks
- WL2K gateway
  - Any internet-connected station can gateway
  - RMS packet client (VHF)
  - Seamless and bi-directional
- SMTP/POP3 servers integrated
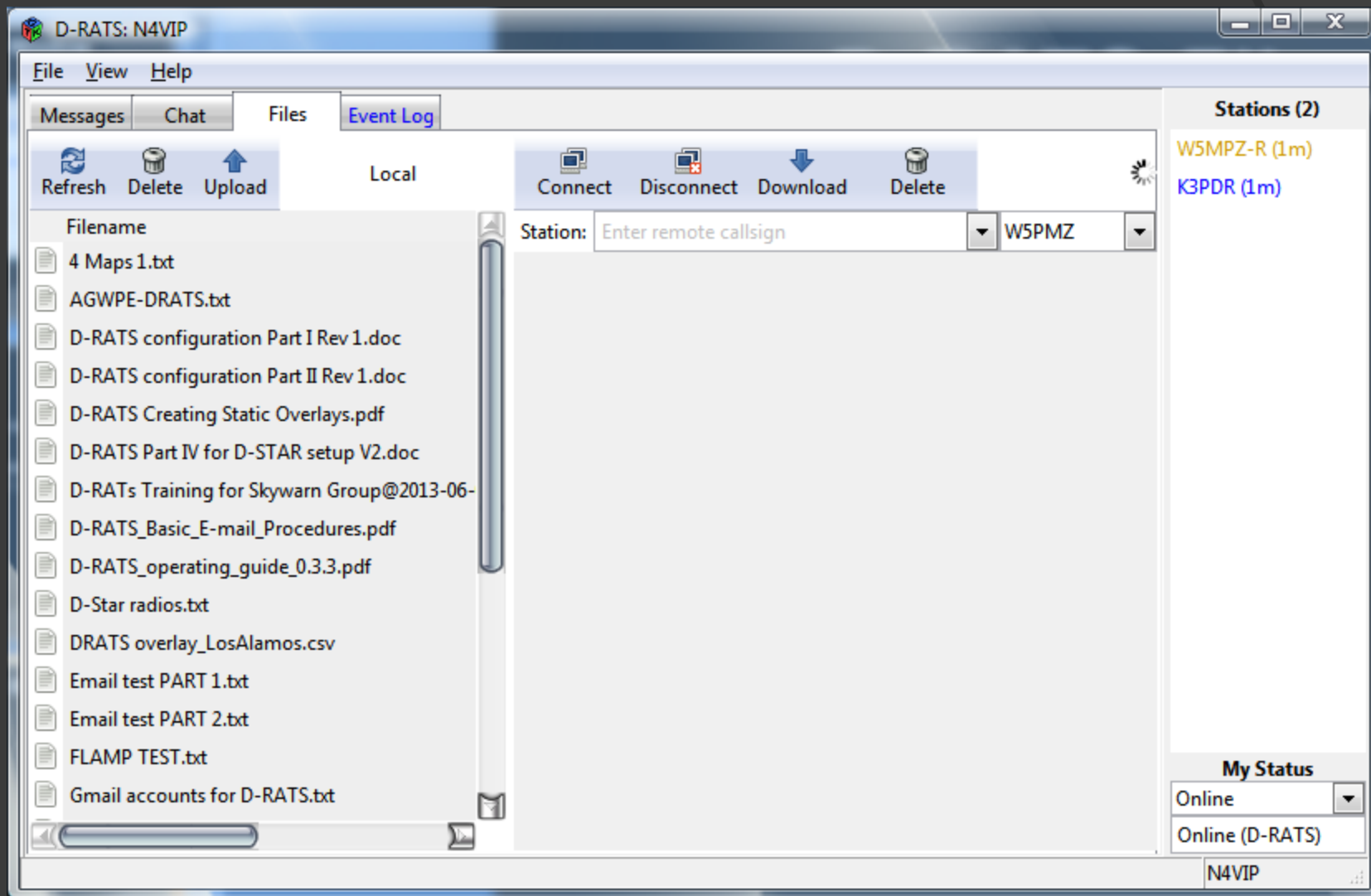 - Paclink-like functionality

D-RATS Chat Window

Chat

- Free-form multicast chat messages
  - Checksum-protected
  - No ACK/NAK from remote stations (yet)
  - Channels and "private" chat
  - Automated QSTs
  - Quick messages

D-RATS Files Window

RATflector

- Connect to other D-RATS users via Internet
- Easy and clean for testing
- Data-only reflector
- Configure D-RATS radio port for one of:
  - Network port on ref.d-rats.com, port 9000
  - Network port on ref.W5MPZ.org, port 9001
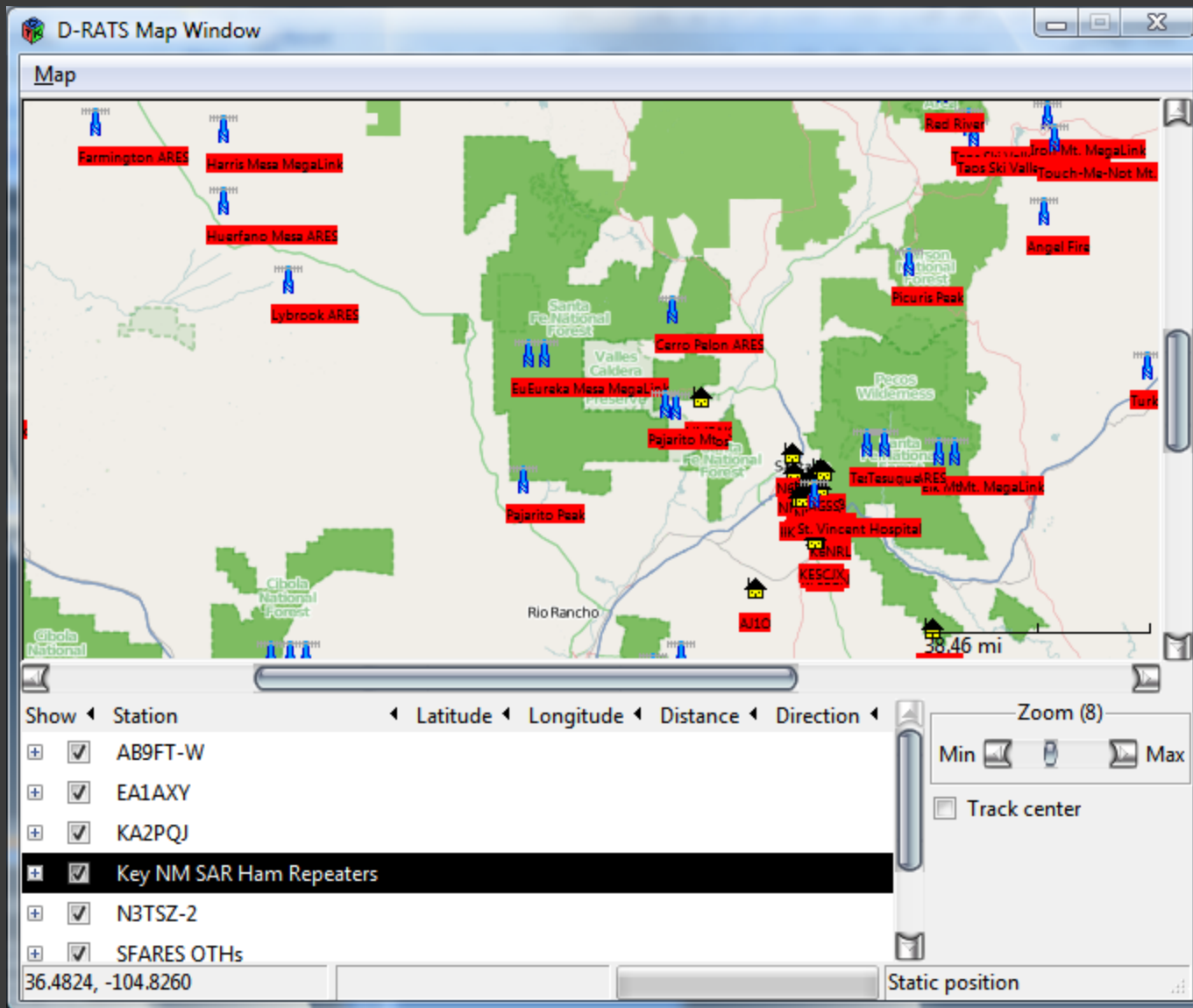- User-run RATflectors too! Included in download

Forms

- Quick fill able forms that can be sent to other stations
  - Fellable for quick access
  - Smaller than an equivalent office document
- Printable view that mimics paper form format
- Recreate any agency form with integrated builder
  - Use the form that the served agency is used to
  - Create event-specific forms for efficiency
- Pass forms easily from station to station tracked with a transfer record

Positional Awareness

- Integrated position reporting
- Integrated mapping
- Distance/bearing calculation to any station
- External GPS support for moving stations
- Use a D-STAR radio with an integrated or external GPS
  - IC-2820H, IC-92AD have integrated GPS options
  - ID-31A built in GPS
  - Other ICOM radios can use any serial NMEA GPS
  - No need for separate dedicated frequency (144.390)

D-RATS Positional Awareness

EmComm operation

- Quickly setup linked repeaters building ad-hoc networks
- Without Internet, repeater still provides expanded voice/data features
- Without repeater, simplex operation still provides expanded capabilities

Data in an Emergency

- Fast, error-free transfer of electronic records
  - Spell checking
  - Situation status reports
  - Resource requests
  - Patient manifests
  - Pictures of damage
- Quiet operation
  - Put radio operators directly in an EOC
  - Field stations in noisy environments
- Integrated logging of messages with times and dates

Can D-RATS satisfy the needs? YES

- Chat – instant messaging
- Messaging – Email, WL2K, SMTP servers
- File Transfer
- Use of standard forms, e.g. IS 213
- Positional awareness
- Use internet and/or RF segment

- D-RATS, written by ARES hams for ARES hams

SFARES use of D-RATS

- EOC
  - Santa Fe County EOC (EM D-RATS trained)
  - Family Assistance Center (FAC) (Pilgrimage)
- Skywarn
- W5MPZ provides a dedicated RATflector (W5MPZ)
- 27 NM ARES members have participated in D-RATS twice monthly Net

Skywarn Spotters

- SFARES Skywarn (station and mobile)
- Mobile
  - FM voice - primary
  - Imagery – secondary
  - iPhone image and email to EM and NWS
  - D-Rats and image allows chat and real-time imagery updates

Skywarn Networks

- SFARES Skywarn Coordinator
  - VHF/UHF
  - D-RATS
  - Tesuque-linked repeaters (now includes Northern NM & CO)
  - NWSChat live
  - NWS radar
  - Positional awareness of all SFARES
- NWS ABQ
  - D-RATS
  - Megalink
  - Phone

Additional D-RATS capabilities

- Everything on internet also possible on RF
- Winlink (VHF/UHF FM) to Winlink station using Paclink, AGWPE, and a Signalink USB
- Packet (15 in NM)
- With RF and <u>D-STAR</u> radios – email, chat, files (no TNC required)
- With RF and analogue radios – chat and TNC

D-STAR Continues to Grow 2013

- *World-wide 28,000 registered users*
- *In the USA*
  - *572 D-STAR Repeater Call signs*
    - *1043 modules (2M, 440, 1.2 GHz or Data)*
- *In New Mexico (and El Paso)*
  - *11 (9 + 2) D-Star Repeater Call signs*
    - *17 modules, i.e. repeaters*
    - *236 registered users (up from 194 in 2012)*

ARES MOTIVATION FOR D-STAR

- D-STAR provides an additional capability in EMCOMM toolbox

- Combination of D-STAR and D-RATS provide an expanded capability by utilizing a single integrated software program

A State-wide D-Star alert networks

- Provide a State-wide Alert Net System to notify all concerned when the Emergency Alert System (EAS), telephone system, cell system are not working

- Multicast – a "Multicast Group" is a group of repeater/module link combinations defined by D-STAR gateway administrators.

- Many D-Star repeater owners (W5MPZ, NM5WR, W6DHS, Farmington and W5SF) already agree for use of their repeater for emergencies

Versatile State-wide VHF and UHF networks

- Build expanded net with portable repeaters
- Several D-STAR repeaters have both VHF and UHF.   Without internet, they couldn't be linked!
- Solution – build portable D-STAR cross-band repeaters to re-link established D-STAR repeaters. For example, one portable repeater could link W5SF and W5MPZ and one portable repeater could link K5URR and W5AQA

References and Resources

- D-RATS Website - http://www.d-rats.com – latest Version 3.3
- Yahoo d-rats_group · D-RATS - A communication tool for D-STAR
- NM D-RATS list-server - (nm-d-rats@googlegroups.com)
- 1st and 3rd Wednesday of each month D-RATS Net at 1930
- NM D-STAR list-server - (nm-dstar@yahoogroups.com)
- 1st and 3rd Thursday of each month D-STAR Net at 2000

Thank you