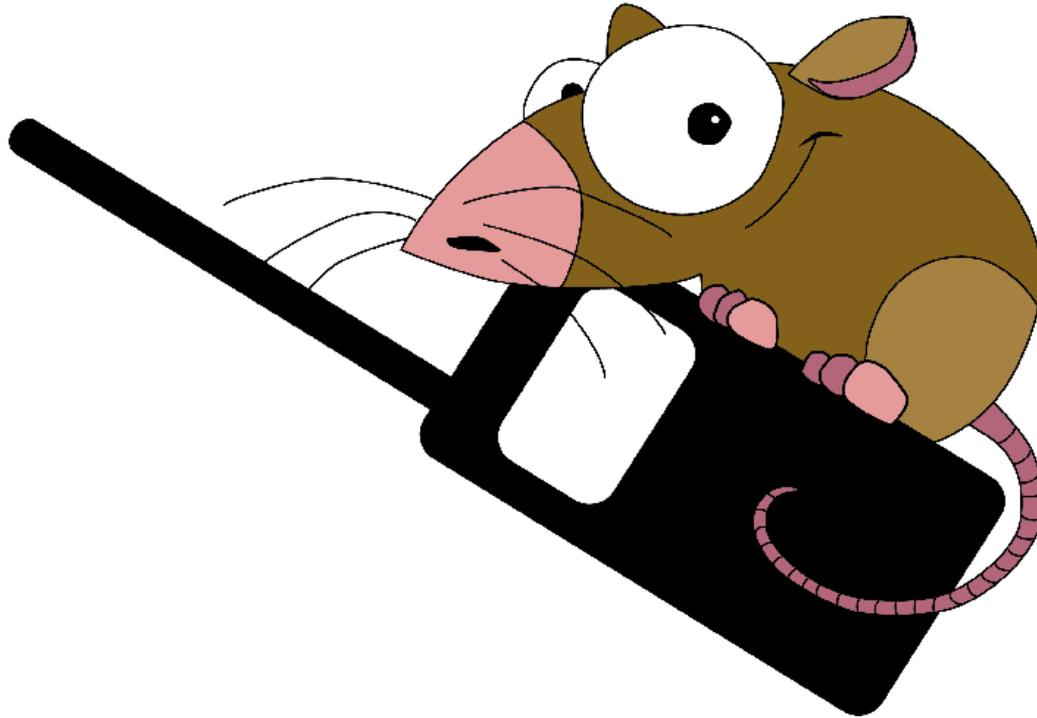


D-RATS



Communications Academy 2009
Dan Smith - KK7DS

Outline

- What is D-STAR?
- What is D-RATS?
 - Goal
 - Messaging
 - Files and Images
 - Positional Awareness
 - Future
- Implementation

What is D-STAR?

- Purely digital mode
- Simultaneous voice and data
- High-speed (DD) and Low-speed (DV)
- Repeater and gateway infrastructure
- All DV radios can do ~950bps data
 - No modem required
 - Just a serial port (no framing, ECC, etc)
 - Not 8-bit safe



What is D-RATS

(Goal)

- All-in-one tool for D-STAR data ops
- Provide real uses for data channel
- Oriented at EmComm
- No dependence on infrastructure
 - Originally targeted for simplex
 - All network interaction at endpoints

What is D-RATS?

(Messaging)

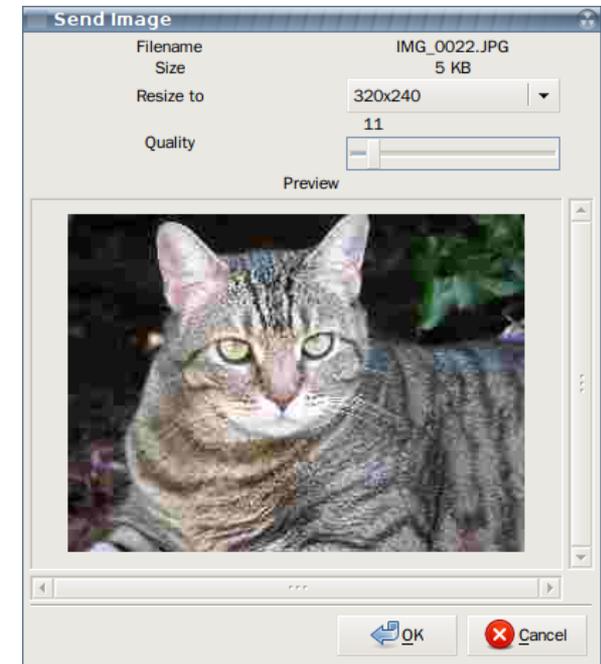
- Free-form multicast chat messages
 - Checksum-protected
 - No ACK/NAK from remote stations (yet)
- Structured messages
 - Use XML to convey structure and content
 - XSL at the endpoints for presentation
- Email gateway
 - Crafted headers for reply and forward



What is D-RATS?

(Files and Images)

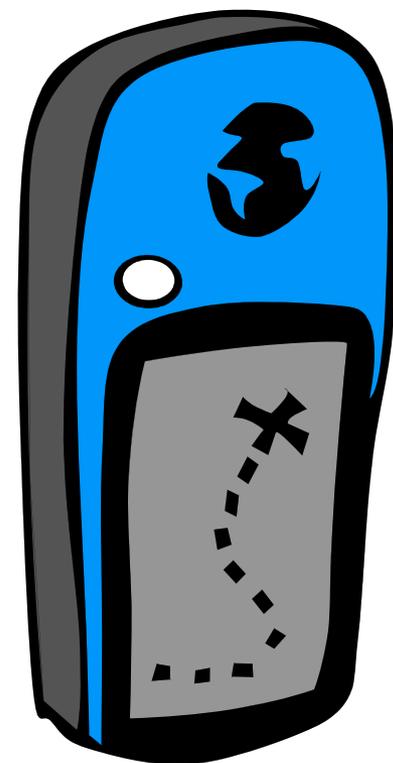
- Arbitrary file transfers with sliding window, compression, and resume
- “File server” for remote retrieval
- Integrated resize/resample of image files



What is D-RATS?

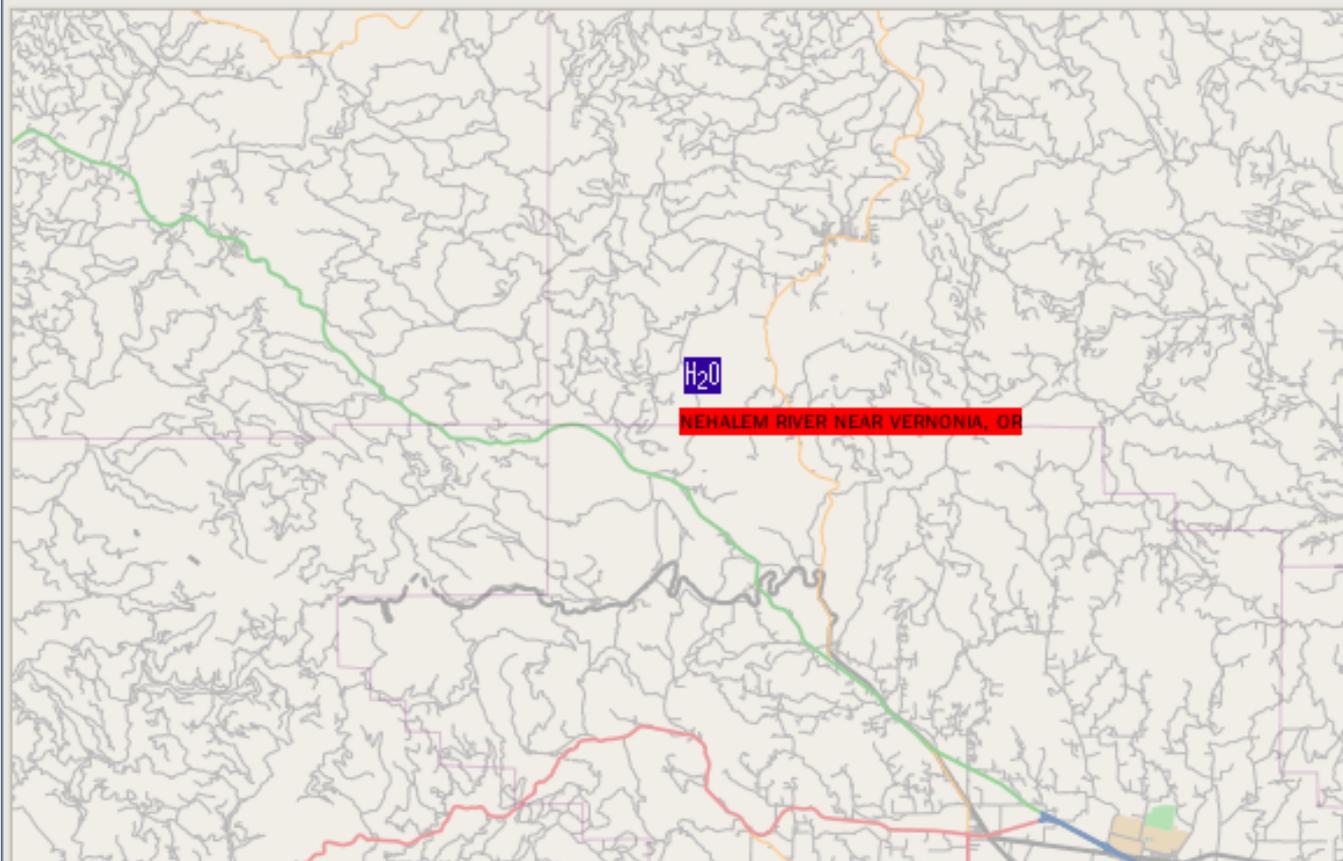
(Positional Awareness)

- Captures and sends ICOM GPS strings
- Distance and direction calculation
- Integrated map display
- External GPS to multiplex the port
- Moving stations updated in real-time



D-RATS Map Window

Map



Show	Station	Latitude	Longitude	Distance
<input type="checkbox"/>	Missouri Emergency ...			
<input checked="" type="checkbox"/>	Misc			
<input checked="" type="checkbox"/>	Rivers			
<input checked="" type="checkbox"/>	NEHALEM RIVER NEAR ...	45.8071	-123.2832	0.00
<input checked="" type="checkbox"/>	Stations			

Zoom (10)

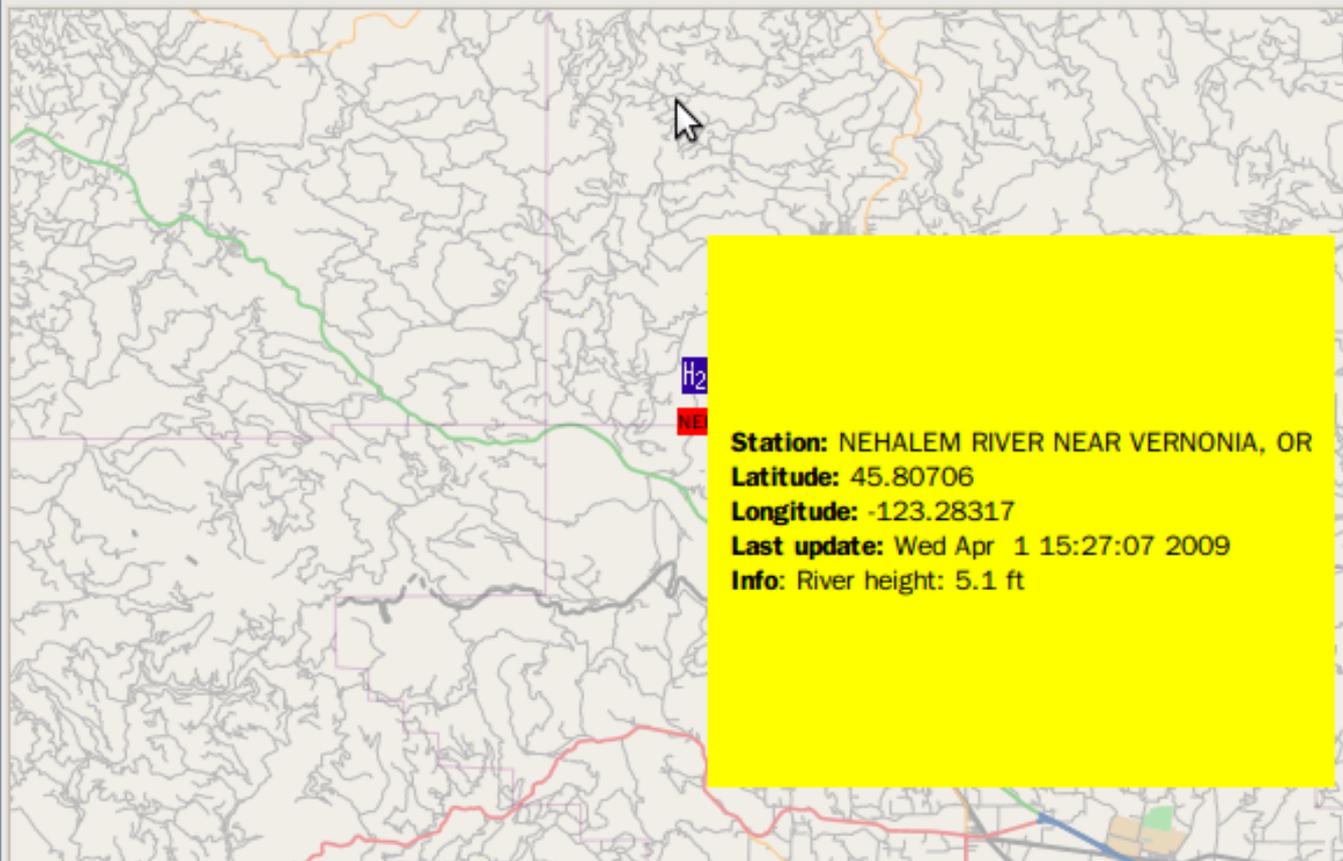
Min Max

Track center

45.9464, -123.1677

Center: NEHALEM RIVER ...

Map



Show	Station	Latitude	Longitude	Distance
<input type="checkbox"/>	Missouri Emergency ...			
<input checked="" type="checkbox"/>	Misc			
<input checked="" type="checkbox"/>	Rivers			
<input checked="" type="checkbox"/>	NEHALEM RIVER NEAR ...	45.8071	-123.2832	0.00
<input checked="" type="checkbox"/>	Stations			

Zoom (10)

Min Max

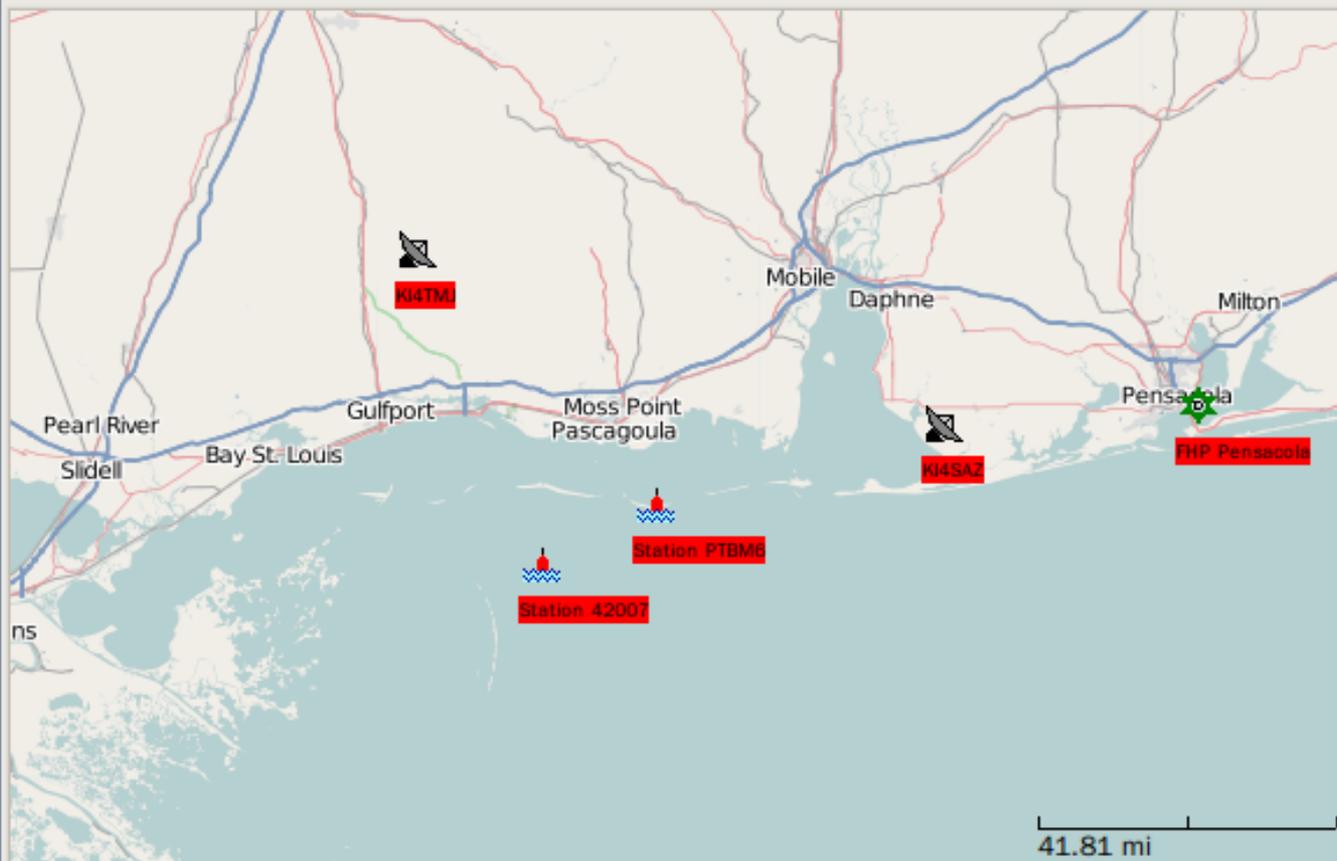
Track center

45.7997, -123.2735

Center: NEHALEM RIVER ...

D-RATS Map Window

Map



Show	Station	Latitude	Longitude	Distance
<input checked="" type="checkbox"/>	Buoys			
<input checked="" type="checkbox"/>	Station 42007	30.0900	-88.7690	0.00
<input checked="" type="checkbox"/>	Station PTBM6	30.2130	-88.5000	0.00
<input checked="" type="checkbox"/>	Campgrounds			
<input checked="" type="checkbox"/>	City Fire Stations 0-4			

Zoom (8)

Min Max

Track center

31.1975, -87.7533

Center: Station 42007

Map



Station: Station 42007
Latitude: 30.09000
Longitude: -88.76900
Last update: Wed Apr 1 15:24:42 2009
Info:
 April 1, 2009 4:50 pm CDT
 Location: 30.09N 88.769W
 Significant Wave Height: 2 ft
 Dominant Wave Period: 6 sec
 Mean Wave Direction: ESE (113)
 Atmospheric Pressure: 29.75 in (1007.5 mb)
 Pressure Tendency: -0.05 in (-1.8 mb)
 Air Temperature: 67F (19.5C)
 Dew Point: 60F (15.5C)
 Water Temperature: 68F (19.8C)

Show	Station	Latit	Longit	Depth
<input checked="" type="checkbox"/>	Buoys			
<input checked="" type="checkbox"/>	Station 42007	30.0900	-88.7690	0.00
<input checked="" type="checkbox"/>	Station PTBM6	30.2130	-88.5000	0.00
<input checked="" type="checkbox"/>	Campgrounds			
<input checked="" type="checkbox"/>	City Fire Stations 0-4			

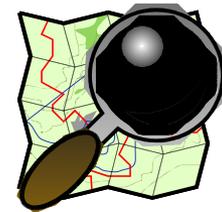
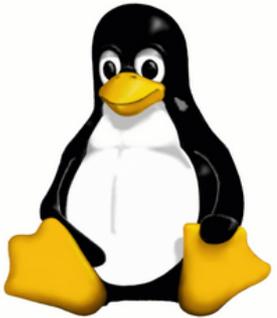
What is D-RATS?

(Future)

- Move to more BBS-centric behavior
 - Email-client-like messaging interface
 - FTP-client-like file transfer interface
 - Better event capture and logging
 - Email transport of forms (interface with WinLink)
- Mapping improvements
 - Modules for display of various POIs
 - Performance
 - Usability

Implementation

- Written in Python/GTK
- Runs on Linux, Mac, and Windows
- Full session stack protocol
- OpenStreetMap.org for free maps



References

- D-RATS Website
 - <http://www.d-rats.com>
- D-RATS Mailing List
 - <http://lists.danplanet.com>

Questions?

Backup

