APRS
Automatic *Packet* Reporting System

Presented by N4VIP

APRS SFARES Outline

- APRS History
- APRS Network
- APRS Digipeters & IGates
- APRS Data Type
- APRS Components
- SFARES Display capabilities
  - SARTrack – APRS-IS
  - SARTrack – Local reception

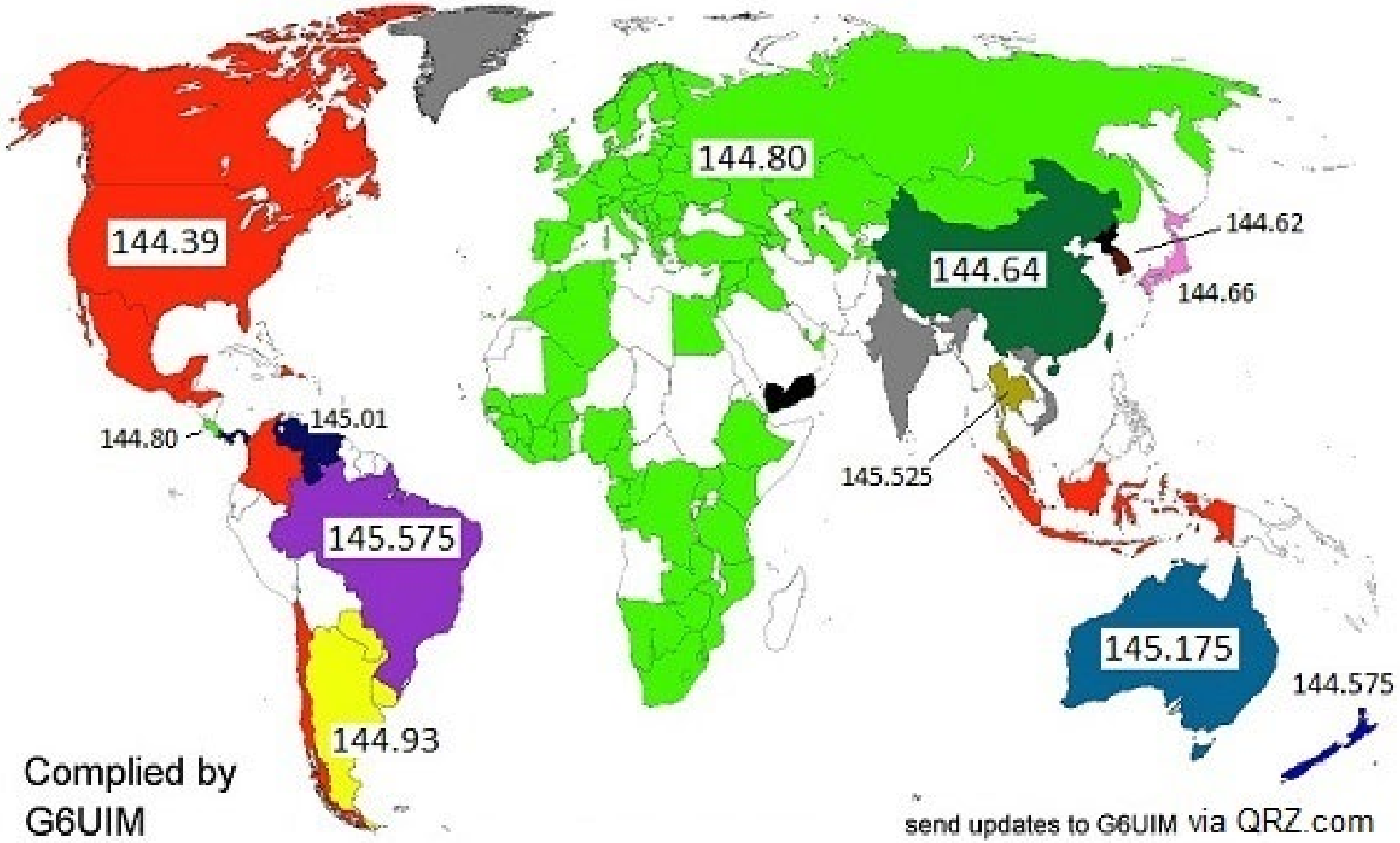
APRS History

- APRS developed 1980's by Bob Bruninga, WA4APR, a senior research engineer at the USNA
- As GPS technology became more widely available, 'Position' was replaced with 'Packet'

APRS Network

- APRS packets transmitted for all other stations to hear and use
- Packet repeaters, called digipeaters, form backbone of the APRS system
- Use store and forward technology to retransmit packets
- All stations operate on the same radio frequency (144.390 MHz, FM) for local reception
- Packets move from digipeater to digipeater, propagating outward from their point of origin

APRS around the world



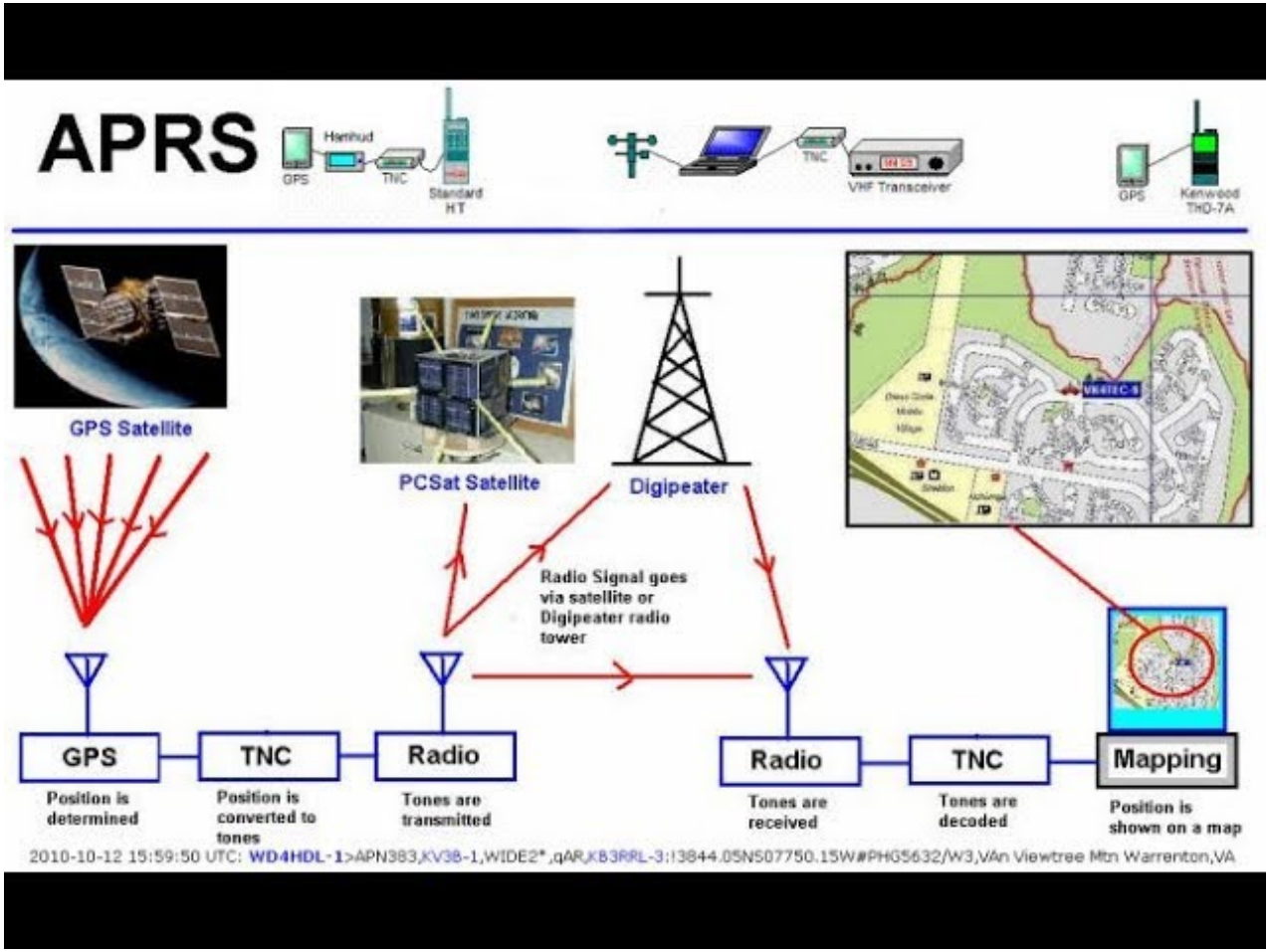
APRS Digipeters & IGates

- Digipeaters keep track of the packets they forward
- Eventually most packets heard by an APRS Internet Gateway, called an IGate,
- Those packets routed to Internet APRS backbone (APRS-IS) for Internet reception
- All APRS-IS data available for local use, e.g. SARTRAK or on a website designed for the purpose, e.g. http://aprs.fi

APRS Data Types

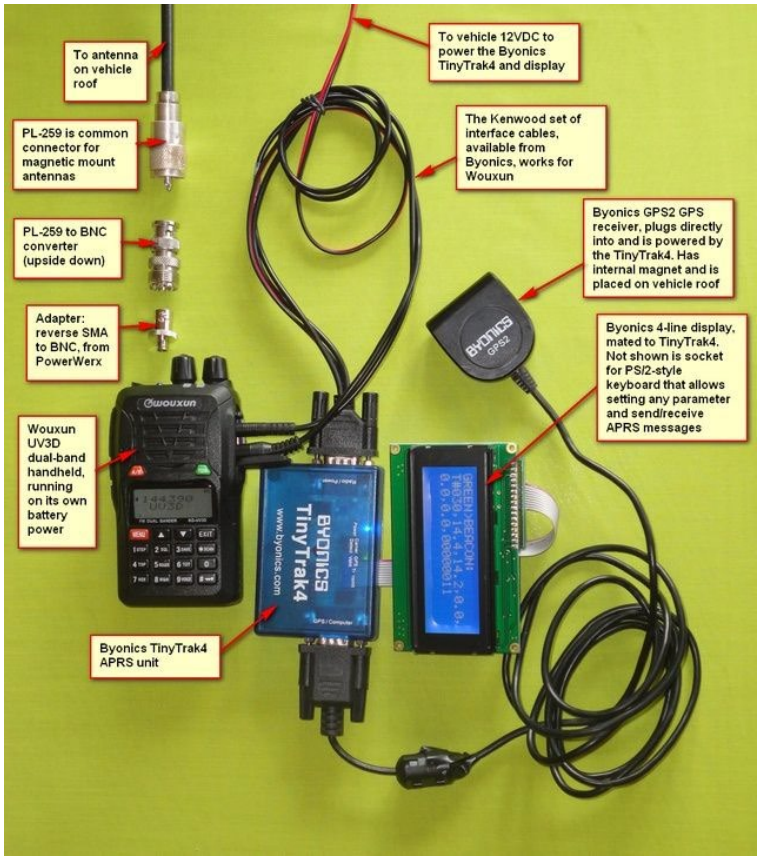
- APRS packet types include:
  - Position/object/item,
  - Status,
  - Messages,
  - Queries,
  - Weather reports and
  - Telemetry
- Position/object/item packets contain lat/long, and display symbol and have optional fields (altitude, course, speed, etc.)
- Positions of fixed stations are configured in the APRS software
- Moving stations (portable or mobile) automatically derive their position information from a GPS receiver connected to the APRS equipment

APRS Components



APRS Beacon Transmitter with GPS Receiver

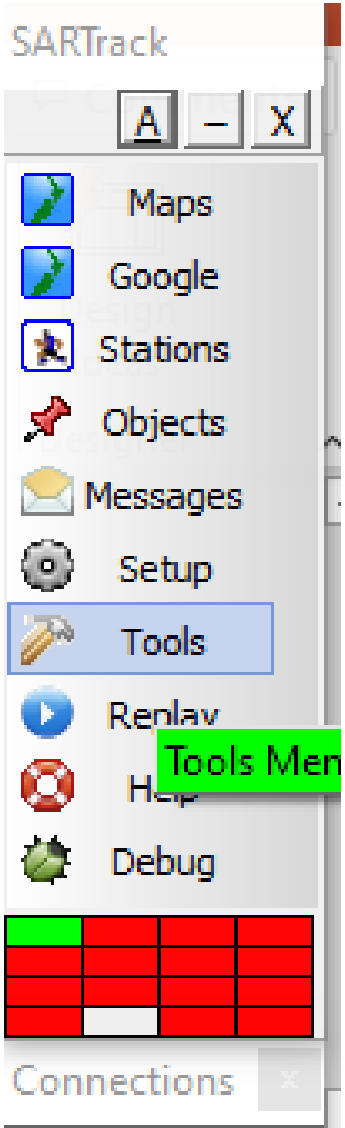
Radios – HTs, Mobile, Base Stations

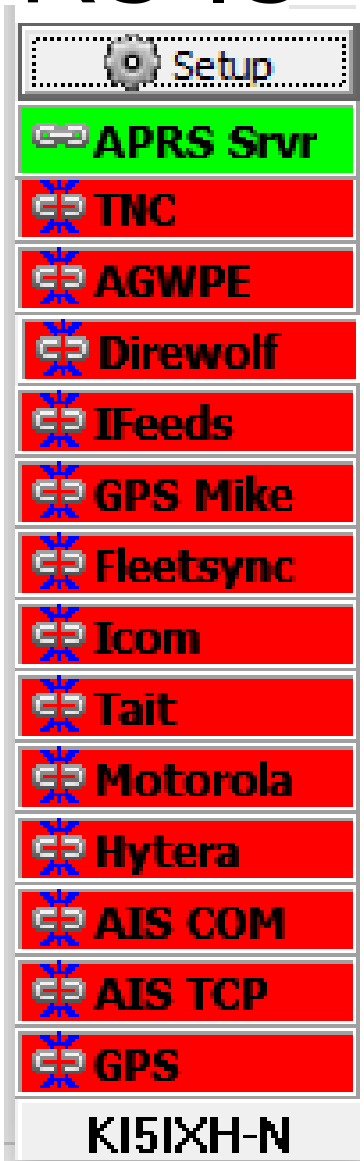


SFARES APRS Usage during an activation

- APRS-IS using SARTrack and internet server
- Local reception using SARTrack and VHF/Direwolf
- Several Food Depot trucks have APRS

SFARES Display capabilities
SARTrack – APRS-IS

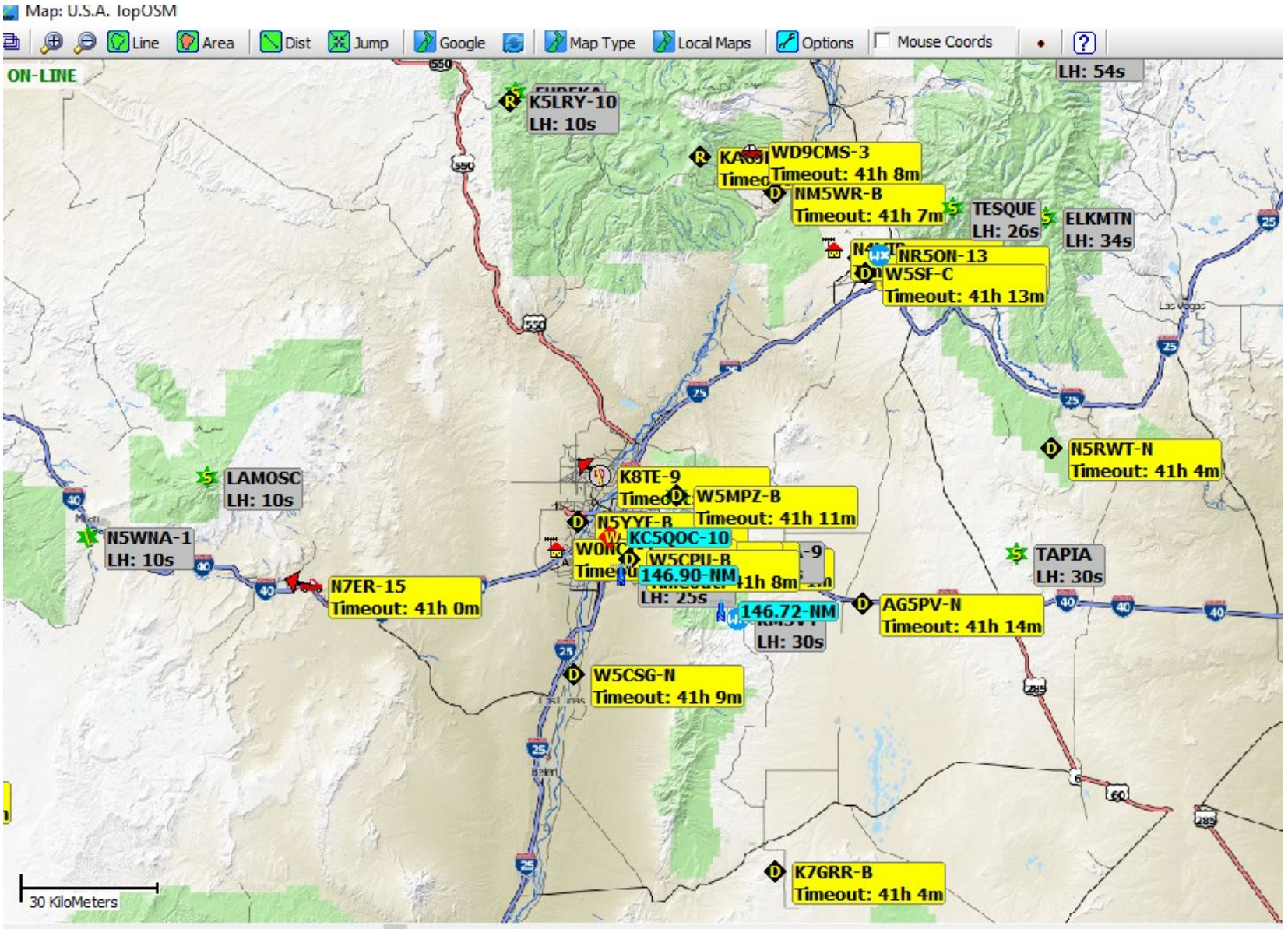




SFARES Display capabilities SARTrack – APRS-IS

- Every Central Site has the SARTrack program installed that access APRS-IS data stream from the Texas APRS Server
- Data are filtered to be within 200 miles of Santa Fe

SARTrack – APRS-IS data

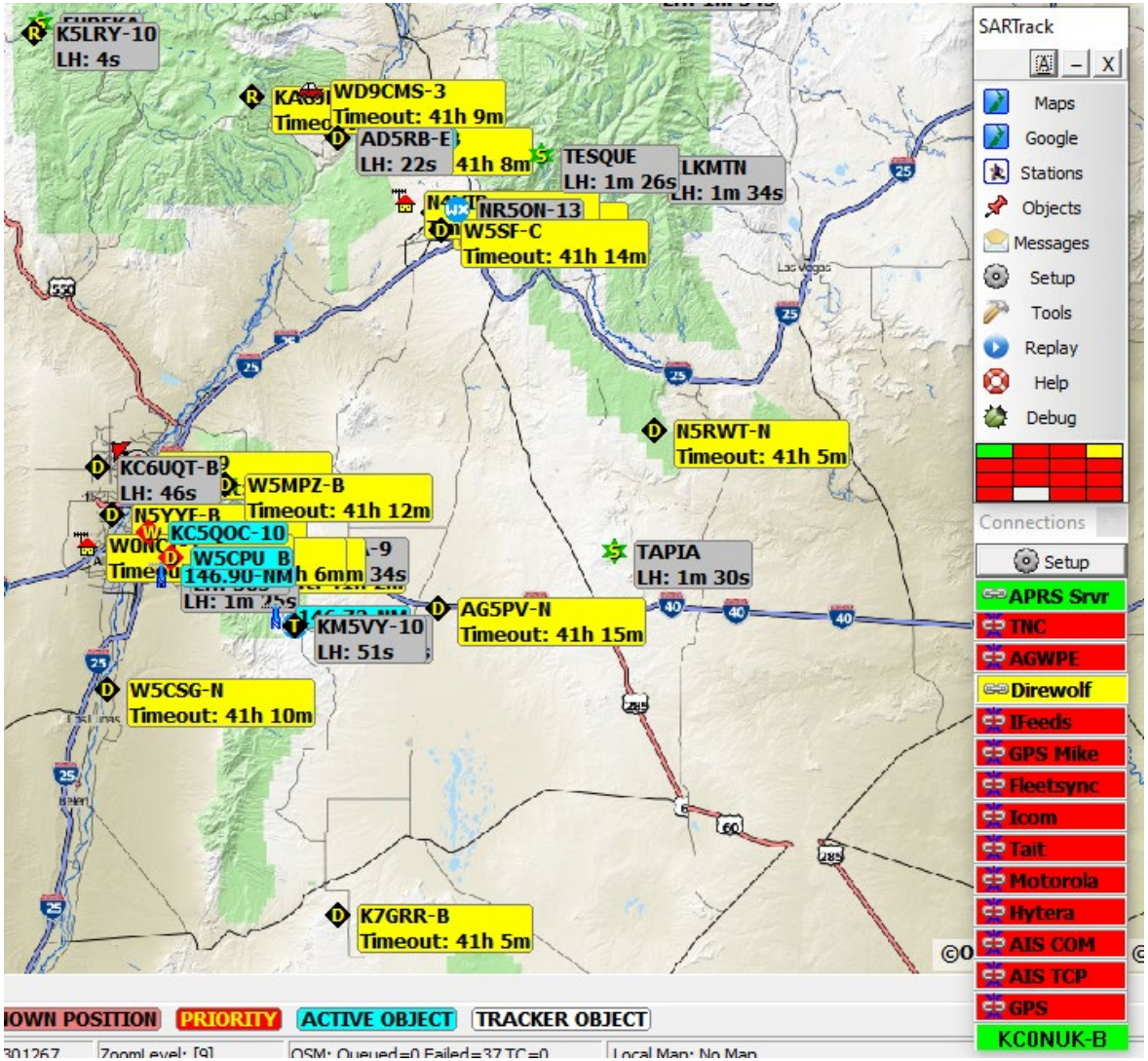


SARTrack Stations and Objects

1. Stations – move
2. Objects – stationary

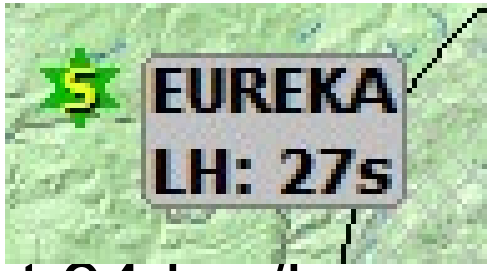
To clear screen

1. Stations – Options and clear Stations Database
2. Objects – Delete All



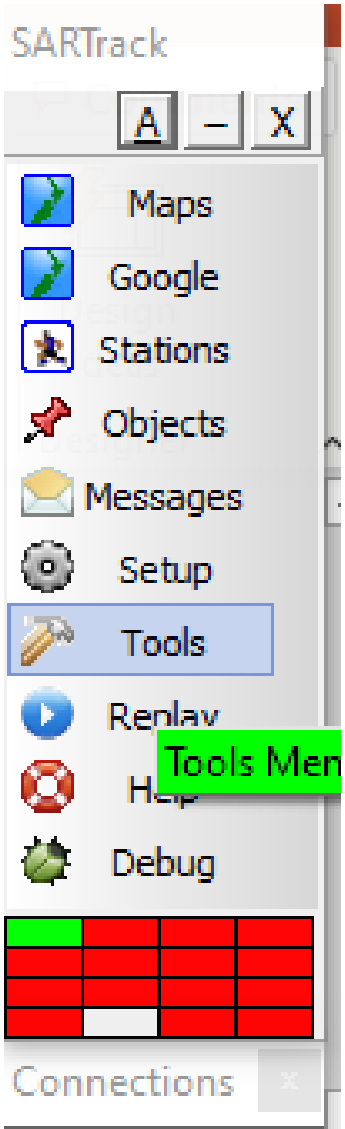
APRS Symbols

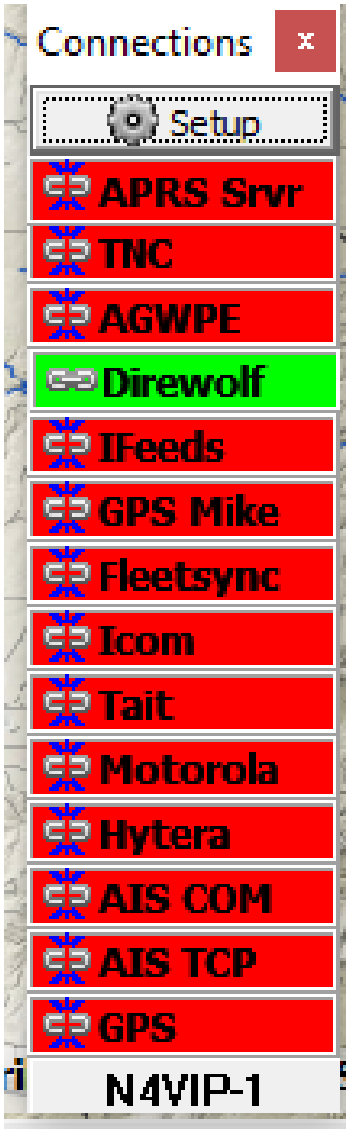
APRS sites

- Digital W5SF – B 
- Wx – Weather – NR5ON 
- Digipeater - APRS 

- Moving truck – West at 94 km/hr 

SFARES Display capabilities
SARTrack – Local reception

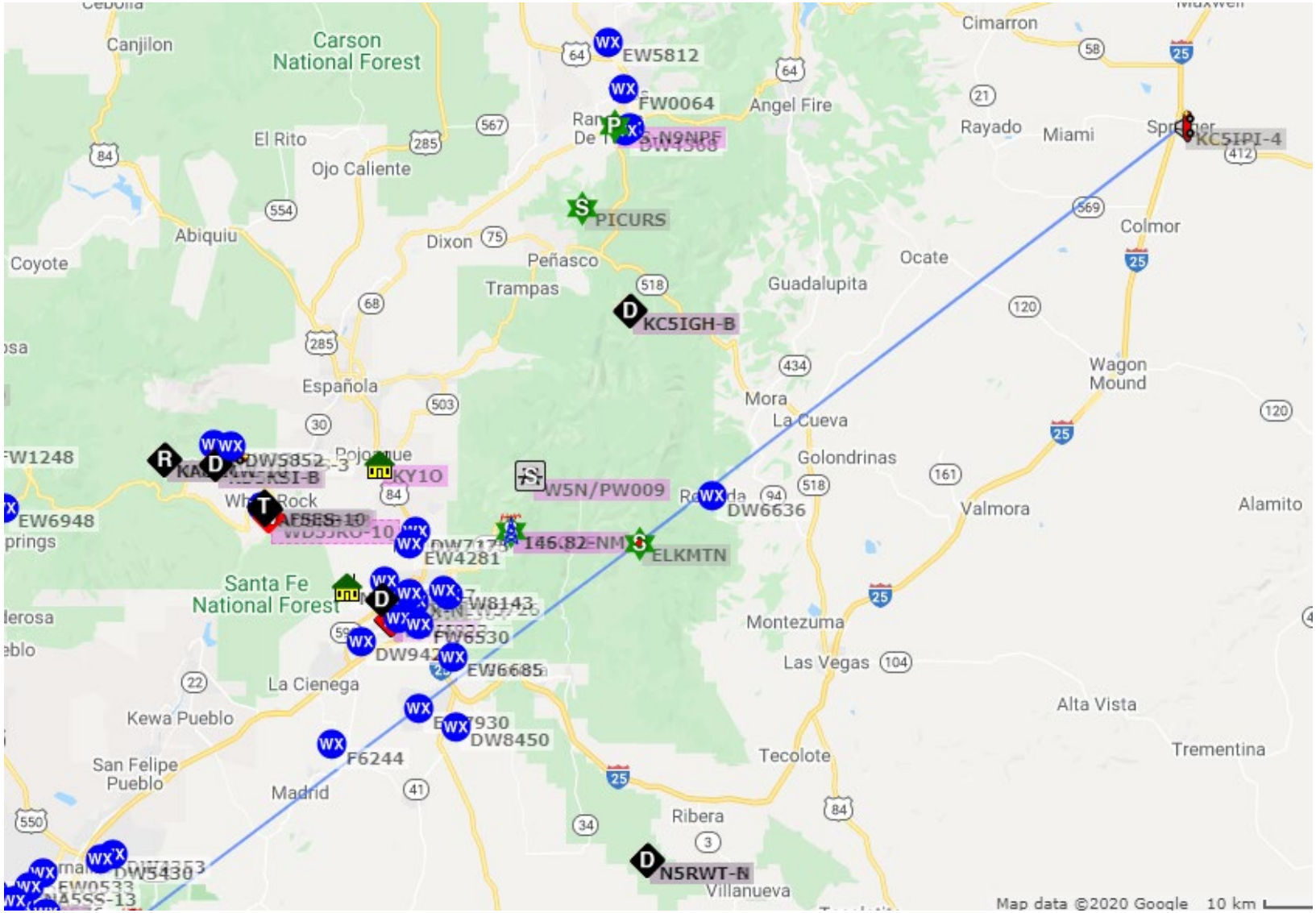




SFARES Display capabilities SARTrack – Local reception

- Every Central Site has a dedicated VHF receiver with connectivity through the DireWolf interface to the SARTrack Program for reception of local APRS data

http://APRS.FI


Canjilon
Carson National Forest
El Rito
Ojo Caliente
Abiquiu
Coyote
Dixon
Peñasco
Trampas
Española
Pojoaque
Santa Fe National Forest
La Cienega
Kewa Pueblo
San Felipe Pueblo
Madrid
Cimarron
Angel Fire
Rayado
Miami
Colmor
Ocate
Guadalupita
Wagon Mound
Mora
La Cueva
Golondrinas
Valmora
Alamito
Montezuma
Las Vegas
Alta Vista
Trementina
Tecolote
Ribera
Villanueva
EW5812
FW0064
N9NPF
KC5IPI-4
PICURS
KC5IGH-B
KY1O
W5N/PW009
DW6636
ELKMTN
146.82-NM
EW4281
EW8143
FW6530
EW6685
DW8450
F6244
DW5430
N5RWT-N
Map data ©2020 Google
10 km

Resources

- SARTrack – www.sartrack.co.nz (Windows)
- APRS.FI

SFARES ARRL SET 24 OCT

- All APRS equipped/mobile SFARES members should activate APRS
- All SFARES members at home QTH track all SFARES mobile units
- After SET completion, all units submit tracking log to identify where APRS data can be received and transmitted