APRS® Workshop

Hendricks County ARES
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Presentation available at www.hendricksares.org
APRS is a registered trademark of Bob Bruninga WB4APR

Agenda

- Introduction to APRS (45 minutes)
- Break
- APRS digipeating (15 minutes)
- SmartBeaconing® (10 minutes)
- APRS messaging (10 minutes)
- APRS configuration example (15 minutes)

Introduction to APRS®

Introduction to APRS

- What is APRS?
- What can you do with APRS?
- What do you need for APRS?
- Where can you learn more about APRS?

What is APRS?

- Automatic Packet Reporting System
  - also known as Automatic Position Reporting System
  - can be used for more than just beaconing a station's position
- Developed by Bob Bruninga WB4APR in the 1990s
- Based on AX.25 packet protocol
  - Unnumbered Information packets (UI)
  - UI 's are unacknowledged
- Real-time information distribution system
- Packets can move through RF or the Internet
- Stations, objects, and data can be displayed on a map

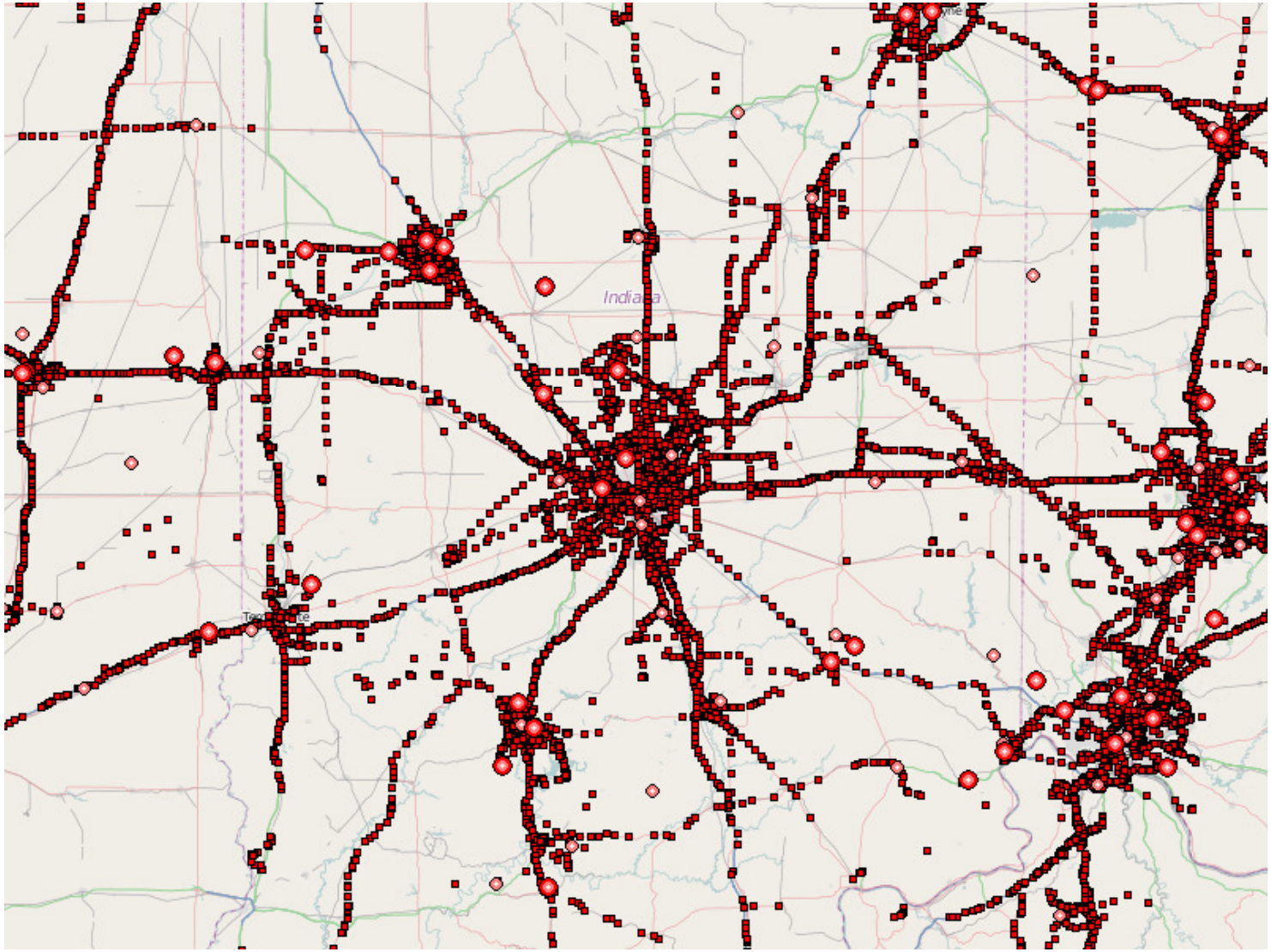
What can you do with APRS?

- Vehicle tracking
  - cars, trucks, boats, balloons, airplanes
- Locate resources
- Announce repeaters, hamfests, meetings, nets
- Weather data reporting
- Short messages

How does all this work?

- Stations transmit their positions
- Stations transmit objects
- Most operations are on 144.390 MHz
- Digipeaters repeat positions and objects
- I-Gates send positions and objects to APRS-IS
  - Reverse I-Gates transmit messages from APRS-IS to destination

APRS activity



Digipeater paths

- Digipeater paths – determine how many “hops” your packet will make
- Suggested paths
  - Mobile: WIDE1-1,WIDE2-1
  - Base: WIDE2-2
- Don’t abuse the system

What do you need for APRS?

- Radio
- TNC
- GPS receiver
- Computer

But you don’t need all of these at the same time.

APRS Home Station on RF

- Radio
- TNC or Sound Card TNC
- Weather Station (optional)

- Computer (optional)

APRS Mobile Station on RF

- Radio
- TNC
- GPS receiver (with or without display)

- Computer (optional)

APRS Home Station on Internet

- Computer

APRS Mobile Station on Internet

- Smart Phone

—or—

- Computer with air card or WiFi connection

Radio

- RX signal (audio from radio to TNC)
  - detector audio preferred
- TX signal (audio from TNC to radio)
- PTT

6-pin mini-DIN connector on many newer radios

TNC

- Any TAPR TNC2 clone
  - AEA PK-88, PK-96, or PK-232
  - Kantronics KPC2 or KPC3 ($230)
  - MFJ 1270B
  - PacComm Tiny-2, PicoPacket, HandiPacket
- KISS-only TNCs
  - TNC-X, now available as MFJ 1270X ($130)
- Sound Card TNCs + Radio Interface
  - AGWPE

Trackers

Specialized TNCs with features dedicated to APRS tracking

- Argent Data Tracker2, OT3m ($95)
- Byonics
  - TinyTrak3 ($33-42) – transmit only
  - TinyTrak4 ($65-75) – receive and transmit
- Kenwood RC-D710 ($320)

Radio/TNC combos

- Alinco
  - DR-135T w/ Argent Data T2-135 ($170 + $85)
- Argent Data
  - T2-301 ($230)
- Byonics
  - MicroTrak RTG (TT3) ($150)
  - MicroTrak AIO (TT3) ($260)
- Kenwood
  - TH-D72 ($450)
  - TM-D710 ($530)
- Yaesu
  - FTM-350 ($540)
  - VX-8DR ($440), VX-8GR ($350)

Kenwood TM-D710 screen samples

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