

Fully Decoded

Everything you Need to Know



## Why did public safety agencies Nationwide adopted statewide 800 MHz APCO P25 Trunked Radio Systems?

## Interoperability!



The Terrorist Event of September 11, 2001 resulted in 2,977 Victims

Including
415 Emergency Workers

343 Firefighters
64 Law Enforcement
8 EMT

The <u>inability to communicate</u> was cited as a <u>major reason</u> so many firefighters lost their lives that tragic day.

If the firefighters inside the World Trade Center on September 11, 2001 had interoperable radios, they would have heard the order to evacuate that was issued over police radios.



# The drive for Statewide Interoperability was on ......but...... HOW WAS IT FUNDED?

Office of Emergency
Communications

**SAFECOM** 

# State Level Initiatives & Federal Grants

## The 2007 PSIC Grant

Public Safety Interoperable Communications Grant Program

- Beginning in 2007 nearly \$1 billion dollars was available via Federal Grants to fund interoperability
- To participate, funded radio systems <u>HAD TO SUPPORT</u> multi-agency interoperability
- With the 2007 PSIC Grant:
  - Indiana was awarded \$18,291,735
  - Dubois County was initially awarded \$311,878



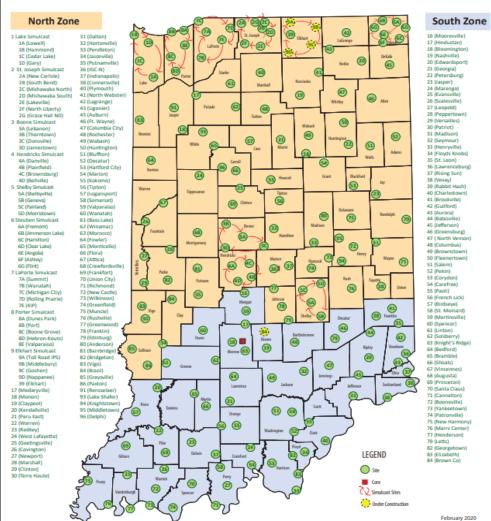
To Date Dubois County has been awarded close to \$500,000 in federal grants to fund interoperable radios

## **Project Hoosier SAFE-T**



- Project Hoosier SAFE-T (Safety Acting For Everyone-Together) is Indiana's Statewide 800 MHz interoperable radio system
- Construction began in 2002 & initially completed in 2009
- It provides 95% mobile coverage via 184 towers statewide
- It allow interagency coordination and response to routine, emergency and catastrophic events.





## **Project Hoosier SAFE-T**



- Motorola 7.16 ASTRO SmartZone 700/800mhz P25 Phase I trunked voice and data system
- Over 85,000 subscribers including:
  - Indiana Department of Homeland Security
  - Indiana State Police
  - Indiana Department of Natural Resources
  - Indiana Department of Transportation
  - Indiana Department of Health
  - Indiana National Guard
  - Local Police, Fire, and EMS



#### On 800 MHz system locally:

- Indiana State Police
- Dubois County Sheriff
- Dubois County Community Corrections
- Dubois County Health Department
- Fire Departments (Backup Only .... Use VHF Primary)
- Dubois County EMS (Part Time)
- Local Police Departments (Except for Ferdinand PD)









## Some counties maintain their legacy (conventional) systems as backups after migrating to SAFE-T 800 MHz

## **How P25 Trunking Works**

#### **CONVENTIONAL OPERATION**







Channel 2 **EMS** 

**EMS** 



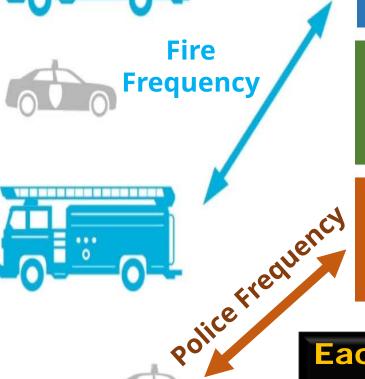
**Frequency** 

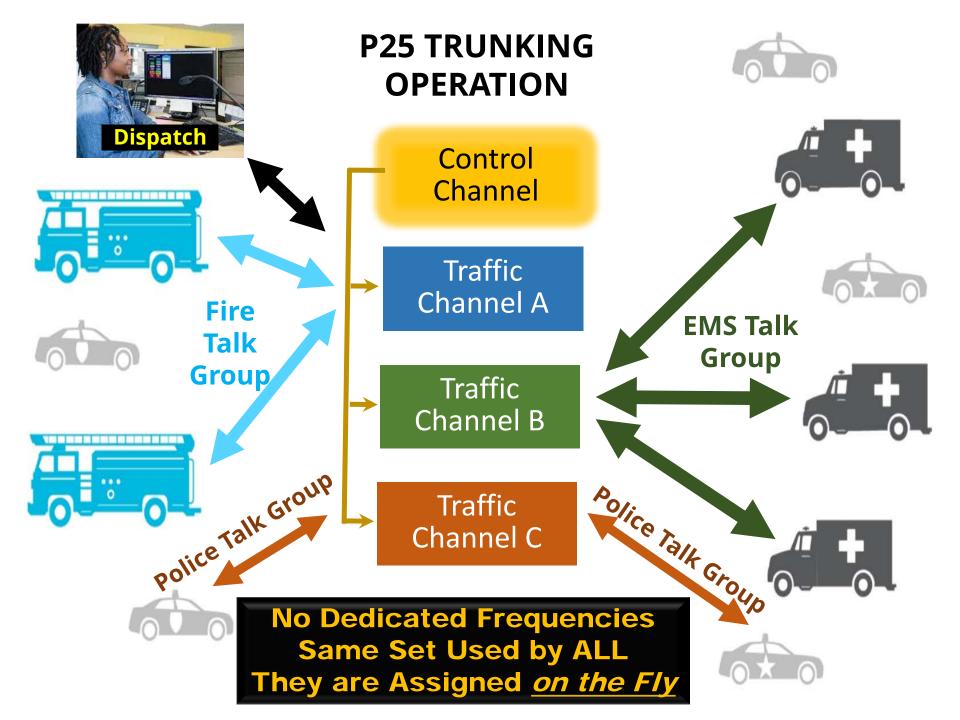
Channel 3 Police

Police Frequency



Each agency has its own frequency





## Frequency Versus Talk Group

## Frequency

Assigned Frequency (MHz) on which an agency communicates

Frequency	Tone	Description
155.02500	91.5	County EMA Operations
154.13000	123.0	Fire/EMS - Dispatch
154.16000		FireGround

Scanner program requires <u>frequency</u> & <u>PL</u>

## Talk Group

Digital code assigned to agencies & recognized by P25 Control Channel

DEC	HEX	Alpha Tag	Description
21170	52b2	19-EMA OPS	County EMA Ops
21160	52a8	19-DCF DISP	County Fire Dispatch
21161	52a9	19-DCF FG 1	County FireGround 1

Scanner requires tower <u>control</u> <u>channel frequency</u> & <u>talk groups</u>

### P25 800 MHz Talk Groups

#### Local

## Assigned to Local Agencies

- Traffic only carried on local towers
- Dubois County has 2 towers locally (Jasper & Birdseye)
- Also carried on closest tower in adjacent counties

What we Listen to (mostly

### Regional

#### **For Mutual Aid**

- Traffic carried on regional towers
- Locally includes
   Daviess, Martin,
   Dubois, Orange,
   Crawford, Spencer,
   Perry

#### Statewide

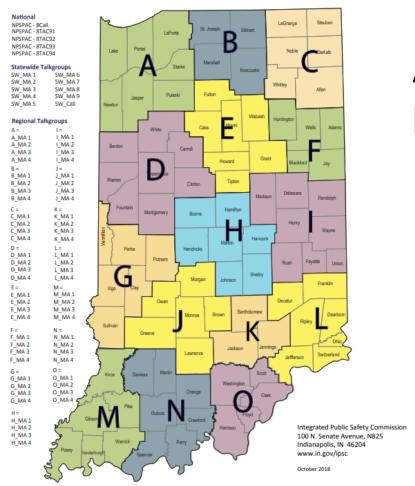
## For Statewide Communications

 Traffic carried on statewide towers

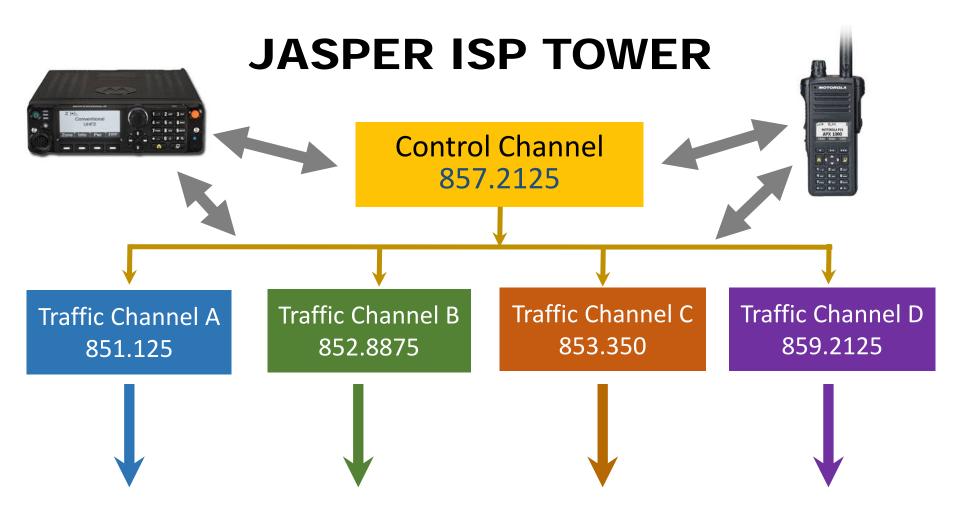
**Common to ALL Radios Statewide** 



### P25 Mutual Aid / Interoperability Options



All ISP, DHS, INDOT, IDNR, ING, PD, Fire, EMS, radios programmed with Mutual Aid talk groups



## All Dubois County Agencies (Local Talk Groups)

#### **Dubois County P25 800 MHz Talk Groups**

DEC	HEX	Mode	Alpha Tag	Description	Tag
21170	52b2	D	19-EMA OPS	County EMA Operations	Emergency Ops
21160	52a8	D	19-DCF DISP	County Fire Dispatch	Fire Dispatch
21161	52a9	D	19-DCF FG 1	County Fireground 1	Fire-Tac
21162	52aa	D	19-DCF FG 2	County Fireground 2	Fire-Tac
21163	52ab	D	19-DCF FG 3	County Fireground 3	Fire-Tac
21164	52ac	D	19-DCF FG 4	County Fireground 4	Fire-Tac
<u>21171</u>	52b3	D	19-EMS DISP	County EMS Dispatch	EMS Dispatch
21172	52b4	D	19-EMS OPS 1	County EMS Operations 1	EMS-Tac
21173	52b5	D	19-EMS OPS 2	County EMS Operations 2	EMS-Tac
<u>21166</u>	52ae	D	19-DCL DISP	Sheriff Dispatch	Law Dispatch
21165	52ad	D	19-DCL CAR	Sheriff Car to Car	Law Talk
21167	52af	D	19-DCL OPS1	Sheriff Operations 1	Law Tac
21168	52b0	D	19-DCL OPS2	Sheriff Operations 2	Law Tac
21169	52b1	D	19-DCL TAC	Sheriff Tactical	Law Tac
<u>21175</u>	52b7	D	19-JPD DISP	Jasper Police Dispatch	Law Dispatch
21174	52b6	D	19-JPD CAR	Jasper Police Car to Car	Law Talk
21176	52b8	D	19-JPD OPS	Jasper Police Operations	Law Tac
21177	52b9	D	19-JPD TAC	Jasper Police Tactical	Law Tac

#### **Dubois County P25 800 MHz Towers**

<u>Jasper</u>	851.125	852.8875	853.350	853.7125a	857.2125c	859.2125
<u>Birdseye</u>	851.0625	851.3875	851.8875	853.400a	853.775c	

**Talk Channels** 

**Alternate Control Channel** 

**Primary Control Channel** 

## Notice the Limited Number of Talk Channels!

During a Local Large Scale Disaster the 800 MHz system could become overloaded

## Compatible Uniden Scanners

## **Uniden Home Patrol 1 (2010)**

- The **FIRST** digital Trunk-Tracker scanner that required **NO** user programming.
- Simply turn it on, enter your location, and monitor local communications.



Home Patrol 1 (\$479)

Programmable using **SENTINEL** software

This model is no longer available

## **Legacy Uniden Trunk-Tracking Scanners**

- BCDX96T (1996)
  - BCD996T (Mobile)
  - BCD396T (Portable)
- BCDX96XT (2009)
  - BCD996XT (Mobile)
  - BCD396XT (Portable)
- BCD996P2 (2015) (\$399)
  - Phase II TDMA Compatible
  - BCD996P2 (Mobile)



BCDX96P2 (\$399)





Can be a bit complicated

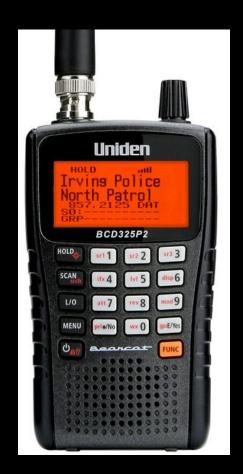


BCD396XT

The latter model is no longer manufactured but is still available from some outlets

## **Current Uniden Trunk-Tracking Scanner**

- Predecessor to BCD396XT
- Phase II TDMA compatible
- Still available
- NON Home Patrol!
- Programmable using
   FREESCAN software (a bit complicated)



BCD 325P2 (2015) \$399

## **Current Uniden Trunk-Tracking Scanners**



BCD536 (2013) (\$499.95)

- Home Patrol Programming by Zip Code or GPS
- Custom programming via easy to use SENTINAL software
- Phase II TDMA compatible
- Wi-Fi Dongle (BCD535 Only)



BCD436 (2015) \$499.95

## **Current Uniden Trunk-Tracking Scanner**

- Predecessor to Home Patrol I (2010)
- Home Patrol programming via Zip Code or GPS
- Phase II TDMA compatible
- Programmable via easy to use SENTINAL software



Home Patrol – 2 (2018) \$499.95

### **Latest Uniden SDR Trunk-Tracking Scanners**



SDS200 (2019) (\$699.99)

- First SDR with I/Q demodulation
- Home Patrol Programming
- Also programmable via easy to use SENTINAL software
- Phase II TDMA compatible
- Ethernet Port (SDS200)



SDS100 (2018) \$659.99

Best Seller

# Programming P25 Trunk Tracking Uniden Scanners

## Programming is the #1 reason by FAR, for returns of police scanners.



16,987+

police scanners programmed since 2013



#1

Rated Police Scanner Retailer



### **Retailers Offering Programming Services**







- Offered for new Purchase (Pre-Program) typically \$45 to \$65 for one county
- Also offered for existing scanners via:
  - Mail-in Unit Programming
  - Remote Programming (Computer)
  - SD Card (Mail)
  - Email (File)

## Can I Program a <u>NEW</u> Uniden Scanner Myself?

Yes you can ..... but .....

#### The Most Basic Program Method: HOME PATROL PROGRAMMING

(aka ... Zip Code Approach)

#### **Home Patrol Programming**

**Current Models** 









Home Patrol - 2

These Scanners are preprogrammed with all known radio systems in the USA and Canada (4 GB microSD Card)

#### **Home Patrol Programming**

**Current Models** 









Home Patrol - 2

- 1. Press the ZIP button to enter your Zip Code
- 2. Press the RANGE button to set range (up to 50 miles)
- Default services include EMS, Law, and Fire Dispatch press SERVICE to make any changes

### Using Home Patrol Programming for Dubois COunty

(BCDX36, SDSX00, Home Patrol -2)

- Set zip code to Jasper (47546), set range to 10 miles
- This is what you get:
  - Dubois (Range 10 MI)

    National Interoperability USA

    RES-OCI TRBOconnect Con+
    Indiana Project Hoosier SAFE-T

    STARCOM21 Statewide Illinois

    Tennessee Advanced Communications Network (TACN)

    REMS / Ambulance / Medical Helicopters / IDPH
    Illinois Railroads
    Illinois State Police (ISP)

    Crawford
    Dubois
    Perry
- → Pike

  → Spencer

  → Common/Shared (Statewide)

  → Department Of Natural Resources

  → Hancock

  → KY Air Evac Helicopters

  → KY Dept of Fish and Wildlife

  → KY State Police

  → Medical Helicopters / EMS Agencies (Area Wide)

  → Air Medical & State EMS

  → State Wildlife Resources Agency (TWRA)

MULTITUDES OF "IN-RANGE" AGENCIES YOU HAVE ABSOLUTELY NO INTEREST IN!!!!!!

## Can I Create My OWN a Scan Lists for my New Uniden Scanner?

## If you are you moderately comfortable with technology, have a PC, and understand what you are doing

✓ YES ..... you may be able to do it yourself

# Creating a CUSTOM list of 800 MHz talk groups or conventional frequencies

(Current Uniden Scanners)

#### Can be done using the scanners menus \_\_\_\_\_ or \_\_\_\_\_\_

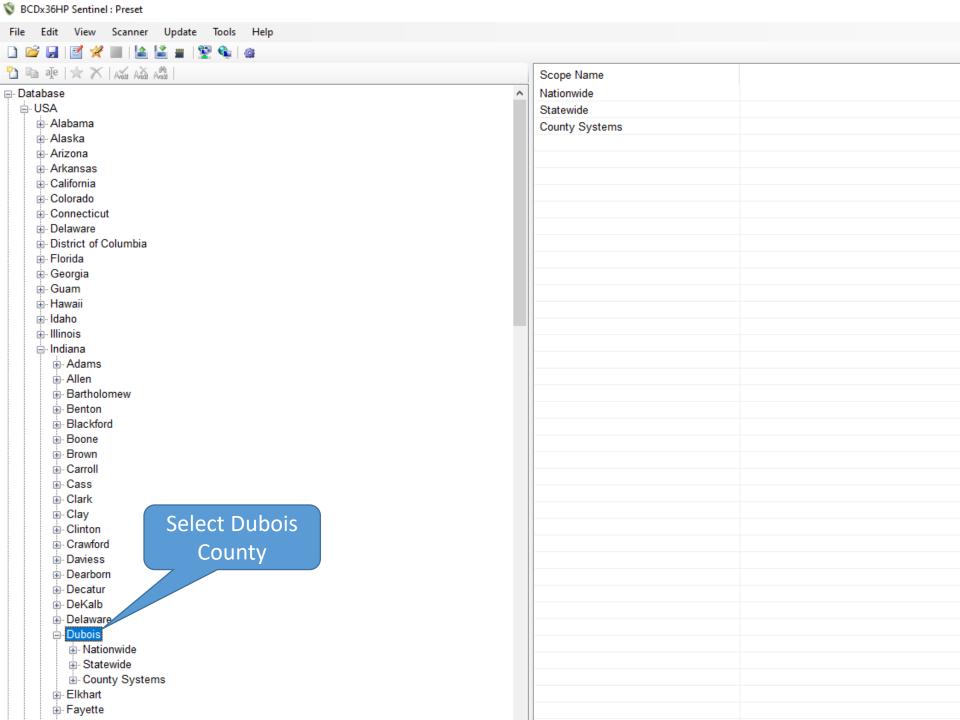
#### Download & install Uniden's FREE SENTINEL programming software

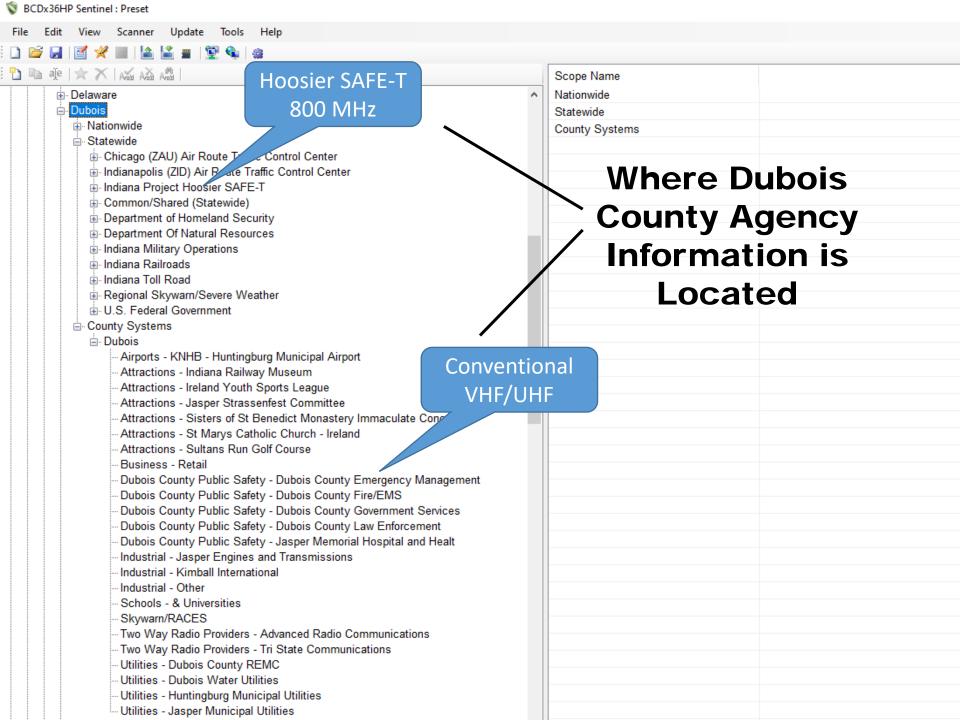


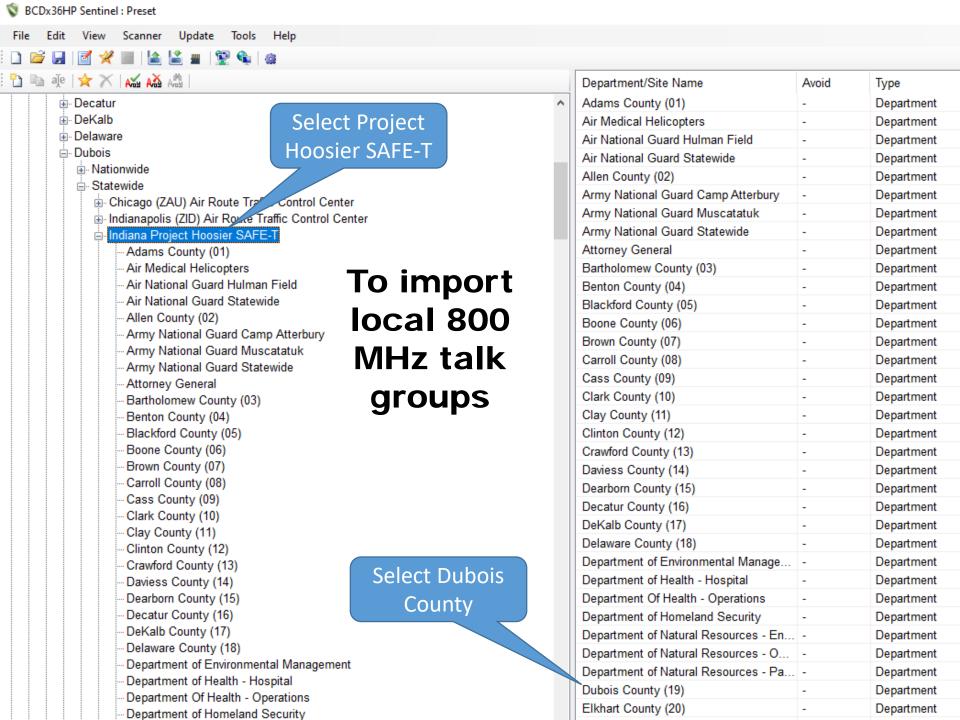
Programs: <u>HomePatrol-1</u>, <u>HomePatrol-</u> 2, <u>BCD436HP</u>, <u>BCD536HP</u>, <u>SDS100</u> and <u>SDS200</u> scanners

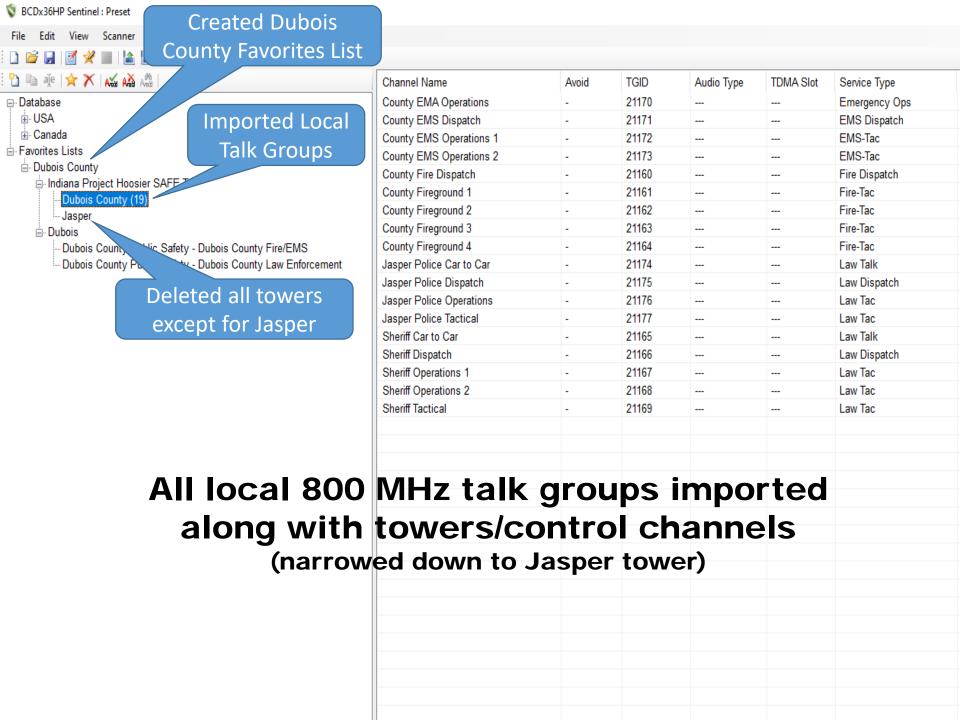


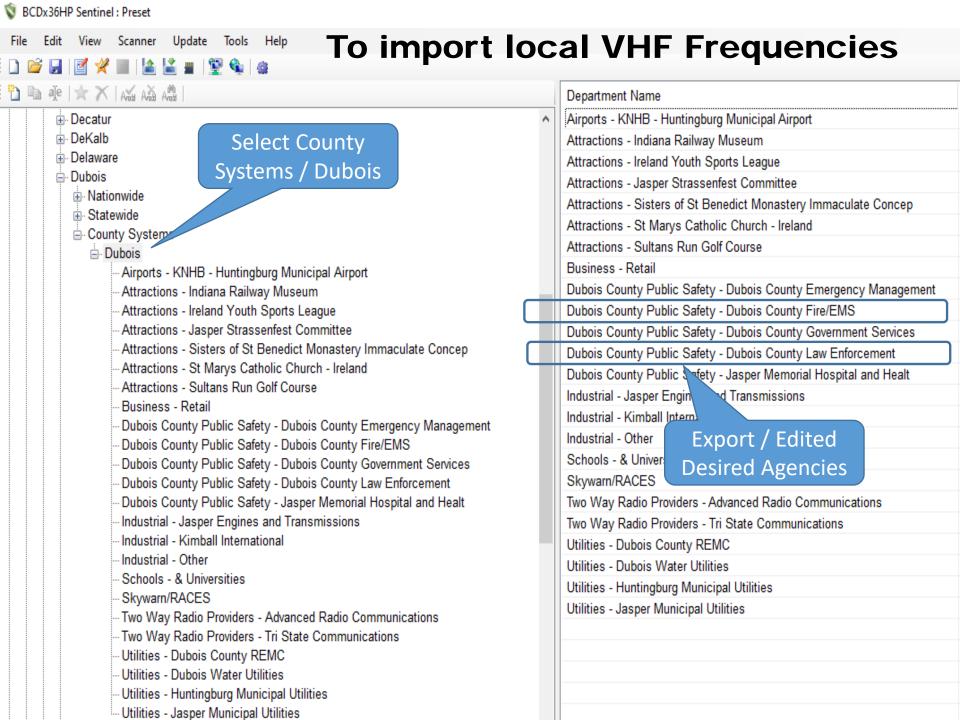
# SENTINEL BCD436HPBCD536HP SDS100SDS200

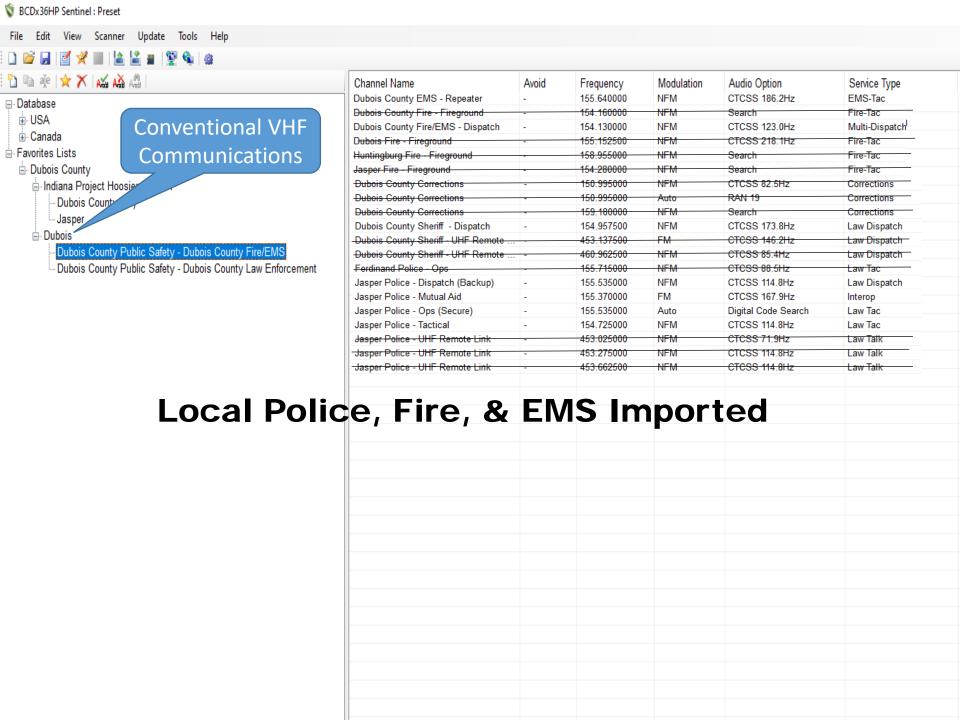


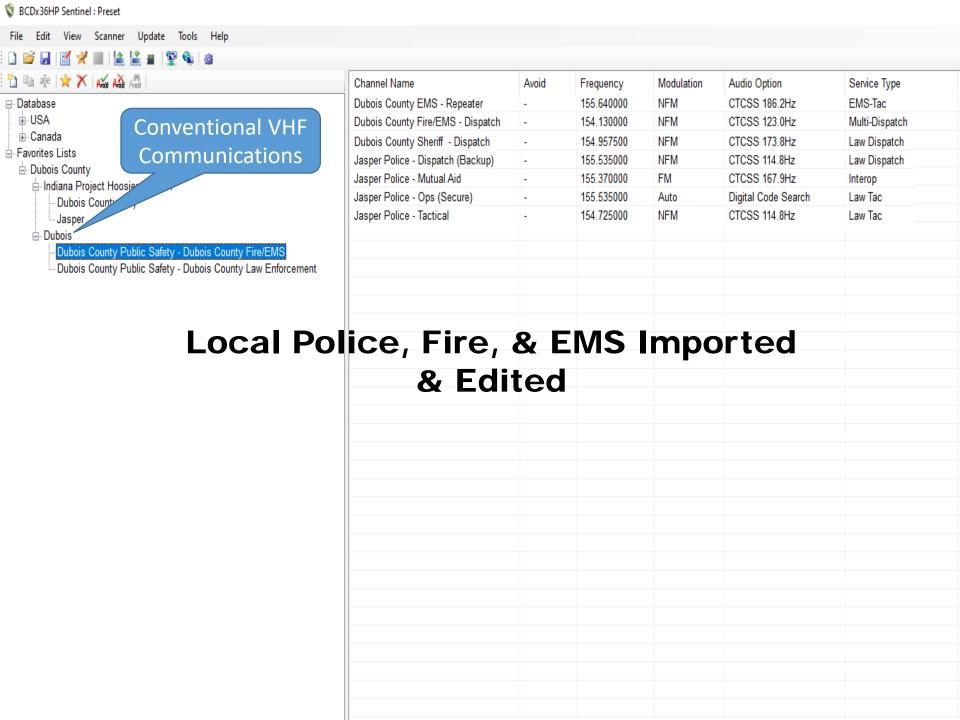












#### When Favorites List is Complete Save to microSD card or Scanner

# Creating a CUSTOM list of 800 MHz talk groups or conventional frequencies

(Legacy Uniden Scanners)

#### For Older (non-Home Patrol) Uniden Scanners



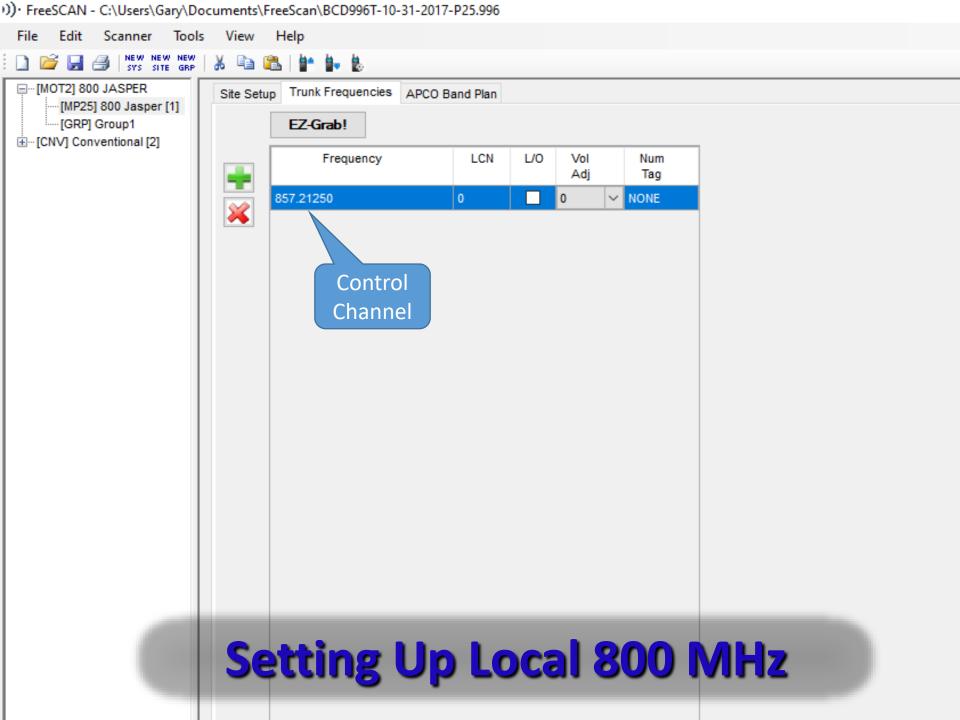
The award-winning <a href="FreeSCAN">FreeSCAN</a> program for programming the Uniden <a href="BCD396T">BCD396T</a>, <a href="BCD996XT">BCD396XT</a>, <a href="BCD996XT">BCD996XT</a>, <a href="BCD996XT">BCD996P2</a>



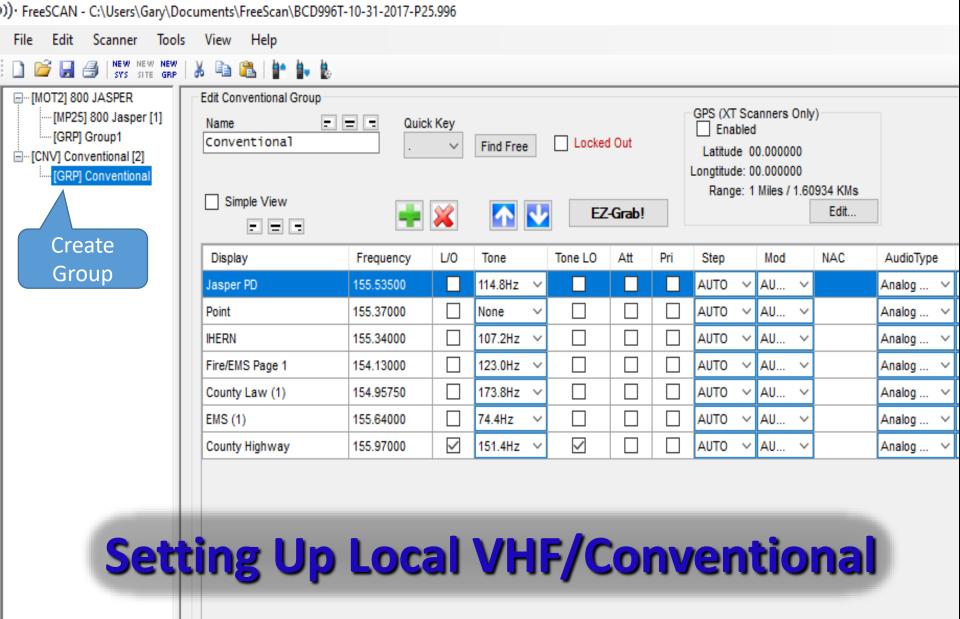
RadioReference.com provides all the Frequencies and Talk Groups







v))· FreeSCAN - C:\Users\Gary\Documents\FreeScan\BCD996T-10-31-2017-P25.996 File Edit Scanner Tools View Help NEW NEW NEW SYS SITE GRP Group & Channel Options - Trunked System ☐··· [MOT2] 800 JASPER GPS (XT Scanners Only) -[MP25] 800 Jasper [1] Enabled Name Quick Key [GRP] Group1 Locked Out Latitude 00.000000 Group1 Find Free <u>+</u>...[CNV] Conventional [2] Longtitude: 00.000000 Range: 1 Miles / 1.60934 KMs Simple View EZ-Grab! Edit... TGID Pri Alt Color Alt Patern VolAdi AudioType Display L/O Alt Tone Alt Level Num Tag П IDHS EOC 10444 П 0 0 Off On 0 Digital ... NONE 0 0 IDHS DISPATCH 1 10439 0 Off On Digital ... NONE 0 0 IDHS DISPATCH 2 10443 0 Off On Digital ... NONE 0 0 Off On 0 NONE IDHS SOUTH 21285 Digital ... 0 0 DNR SOUTH REGION 21156 0 Off On  $\sim$ Digital ... NONE 0 0 0 Off On Digital ... NONE DUBOIS CO EMA 21170 DUBOIS CO EMS 21171 0 0 Off ∨ On 0 Digital ... NONE 0 0 DUBOIS CO EMS 01 21172 0 Off On Digital ... NONE Talk 0 0 0 Off On DUBOIS CO EMS 02 21173 Digital ... NONE 0 0  $\sim$ 0 NONE DUBOIS CO FD 21160  $\vee$ Off On Digital ... Groups DUBOIS CO PD 21166 0 0 Off On 0 Digital .. NONE DUBOIS CO PD TAC 21169 0 0 Off On 0 Digital ... NONE 0 On 0 DUBOIS CO PD C-C 21165 0 Off Digital ... NONE 0 0 DUBOIS CO PD OP1 21167 0 Off On  $\sim$ Digital ... NONE 0 0 DUBOIS CO PD OP2 21168 0 Off On Digital ... NONE 0 0 ISP JASPER DISP 21358 0 Off ✓ On Digital .. NONE 0 0 24041 0 Off On Digital ... NONE N MA-1 JASPER N MA-2 JASPER 24042 0 0 Off On 0 Digital .. NONE 0 0 Digital ... N MA-3 JASPER 24043 0  $\sim$ Off On  $\sim$ NONE 0 0 N MA-4 JASPER 24044 0 V Off On  $\sim$ Digital .. NONE JASPER PD 21175 0 0 Off On 0 NONE Digital ... JASPER PD TAC 21177 0 0 Off On 0 NONE Digital ... 0 0 JAPSER PD C-C 21174 0 Off On  $\sim$ Digital ... NONE 0 0 SW MA Call 10670 0 Off On Digital ... NONE



#### When Scan List is Complete Upload it into the Scanner

