Database   Options   View   Help

TRUNKTRACKER IV   BCD996T

Broward County
SCAN   ID
   860.7375
S9:********.*

Uniden   Bearcat

INTRODUCTION TO VHF/UHF SCANNING

Lesson 1

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I just want to listen to the Police, why does it have to be so complicated?

In short, the business of running any major city requires many agencies.   In the past, the only available systems were analog point to point conventional radio systems.   As Hams, we are very familiar with this concept.   It uses a conventional method of communication.   In a very basic example, you listen and talk on one simplex frequency using line of site communication.

Unfortunately we all share one problem, frequency allocation.
No agency, Federal, State, local or person can transmit anywhere they want.   Somehow this needs to be managed and in the United States, the FCC is the department assigned to this task.

As Hams we all know HF communications will not work in a city, so naturally VHF or UHF are the bands of choice.   Immediately one will recognize that a large city would require a very large number of frequencies and a farm of radio towers just to communicate with their staff.   This is not only very costly but impractical especially in today's world.

The solution is Radio Trunked systems.   A trunked system is a pool of frequencies assigned to some agency that works very much like our own Amateur 2 meter repeater system.   Broward County uses a pool of 28 frequencies in the 800mhz band to provide very efficient communications to all of their departments.   Trunked systems also provide privacy so that each department is not able to receive or talk to each other unless specifically programmed to do so.

This type of system is efficient and easily managed and is totally transparent to the user.   As far as the user is concerned, they either have one channel or several and channel selection is done via a button.

So how does Trunking work? There are three major elements to a Trunked System:

1.   **System Controller** – Assigns voice frequencies to active channels.

2.   **Voice Frequency Pool** - Used for voice communications with the system.

3.   **Talk Group IDs** – Used to identify channels within the system.

System Controller is a special computer that assigns voice channels to users as they key up their radio.   This is the brains behind the Trunking System.

A typical communication starts by someone pressing the PTT button.   This sends a channel request message to the controller that the user wants to start a transmission on a channel (Talk Group ID) that they selected.   The controller sends out a channel grant message to all radios assigning a voice frequency to that channel. At this point, the user's radio beeps alerting them that they can begin speaking.   All this happens in less then a ½ second.   When the user releases the PTT, the controller releases the Talk Group ID and the assigned frequency goes back to the pool of frequencies for the next active transmission.

Voice Frequency is a pool of frequencies available to the system controller for assigning voice traffic.   When a frequency is assigned to an active channel, it is temporarily removed from the pool. When the channel is no longer active, it is returned back to the pool.

Talk Group IDs identify who is talking on a voice channel at any particular moment. A "Channel" is now defined by the Talk Group ID. Talk Group IDs are unique to trunked systems and for the most part replace the frequency as we know it.

Ok, so how do we listen to a Trunked System? You don't need a special scanner to listen to a Trunked system unless you want to follow the conversation or tune into a specific department.

Two steps are needed to listen to a trunked system. **The first step** is to determine what you want to listen to.

You will need to locate a Trunking frequency database for your geographic area. Many free databases are available on the web and for general scanning those will work fine. You may find out after a period of time that you need more detailed information on talk groups and frequencies. These are available and are usually fee based.

A very good local source covering the South Florida area is Brian Cathcart KE4PMJ's guide to South Florida Trunking. Look up www.scannerdude.com for the details.

Another great source and my personal favorite is www.radioreference.com This site provides frequency and trunking information in just about every city in the United States. Access to most of the information on this site is free; however, a paid subscription of $30 per year currently gives you downloading privileges as well as more detailed reports. One major benefit of this site is a number of software scanning programs allow for direct download to your scanner. This saves you a lot of time by not having to manually enter all those frequencies. Just download, save and start scanning.

The second step is to purchase a trunk capable scanner.   Before we dive into this we need to understand the different types of trunking systems.

Trunking Systems
  There are 5 major types of scannable systems:

1. **Motorola Systems** which operate in the 800mhz, 900mhz, UHF between 400 & 512mhz, &VHF between 100 & 200mhz. These systems are generally referred to as Type I or Type II.

2. **EDACS Systems** wide, narrow or scat.

3. **LTR**

4. **P25** which is digital transmission. (Scanners can only monitor non encrypted signals)

5. Conventional radio frequencies.

In the 70's, programmable conventional scanners were introduced. The next generation brought us analog trunking capable scanners and the first commercial company to bring it to us was Uniden. Currently, there are 4 trunking type scanners.

The TrunkTracker was the first scanner (BC235xlt, BC895xlt, PRO-90, PRO-91, PRO-2050, & PRO-2066) could only monitor Motorola 800mhz systems and only one system at a time.

The TrunkTracker II expanded the monitoring capabilities to include Motorola Type I, Type II, Hybrid, Smartnet, Privacy Plus, & GE Ericsson EDACS now owned by M/A Com.   The BC245xlt is the only trunktracker II scanner made.

The TrunkTracker III adds the ability to monitor EF Johnson LTR systems.   They are the BC7800, BC246T, BC898T, BC785D & BC2500 & BCT8?

The TrunkTracker IV adds the ability to monitor APCO 25 non encrypted digital trunking systems.   Currently only two Companies make this type of scanner, Uniden (www.uniden.com) models BCD396T & BCD996T & GRE PSR500 (www.greamerica.com)

Lets start scanning.   Once you locate your trunking frequency guide for your area and program in all the frequencies into your scanner, you will then be ready to start scanning.   Having a Trunk Group ID list is also very handy to identify the specify group that you are listening to.   Listed below is Broward Counties trunking list.   The frequencies with a small "c" after it represent the system controller channel.   Trunk scanners need all the frequencies entered including the controller channels. Conventional scanners (non trunk capable) just need the voice frequencies (no control channels) since they are not able to follow specific conversations.

Broward County Trunk Frequencies as of 9-07-2008

Site	Name	Freqs								
001	Primary	855.23750	856.48750	856.73750	857.36250	857.48750	857.73750	857.98750	858.36250	858.48750
		858.73750	858.98750	859.36250	859.43750	859.48750	859.71250	859.73750	859.98750	860.23750c
		860.48750c	860.73750c	860.98750c	866.18750	866.68750	867.03750	867.71250	868.06250	868.18750
		868.76250								

How to listen to trunking conversations for free. I invite you to listen to my scanner via the internet which is monitoring a number of systems in Broward County. To do this, goto www.proscan.org & download the free ProScan client program. This program requires internet access to be able to connect to my scanner or any scanner using the Proscan server software.

This program works in both Windows Vista and Windows XP. Once installed you will be presented with a list of available scanners to listen to across the United States. To connect to my scanner, locate in the list "Ft. Laud, Fl PD (KF4ZW)" then double click on that selection. Turn up the volume and have fun.

One short but very important note is that frequency allocations for Broadcast TV, Trunking and other conventional services will be changing to new frequencies early next year. This change has been in the works for many years but already has started in many parts of the states and is mandated by the FCC to be completed by April of next year. This will affect just about all Trunking systems in this country so make sure you invest in a scanner that can be reflashed or reprogrammed.

I will be glad to provide more information on this topic in the future or as requested.

There are many more topics associated with Amateur Radio. If this club is interested in expanding on this lesson or would like to learn more on software remote control of Amateur Radio equipment, then place that request with Joey or any of the committee officers.

Thanks for giving me the time to talk about another great hobby.

I can always be reached via my email at mikesamo@gmail.com

Looking forward to your comments.

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