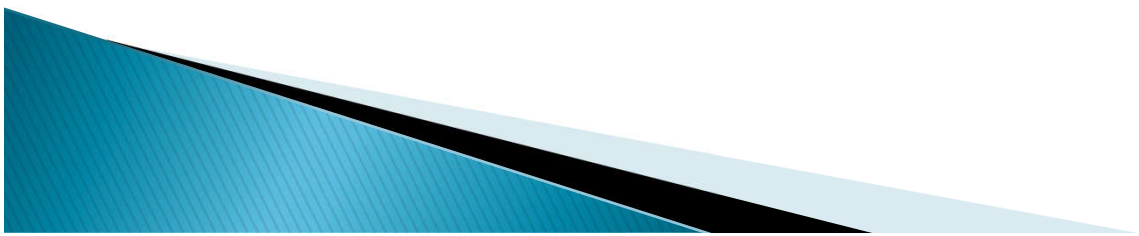

# DMR Now

## Focus of this Presentation:

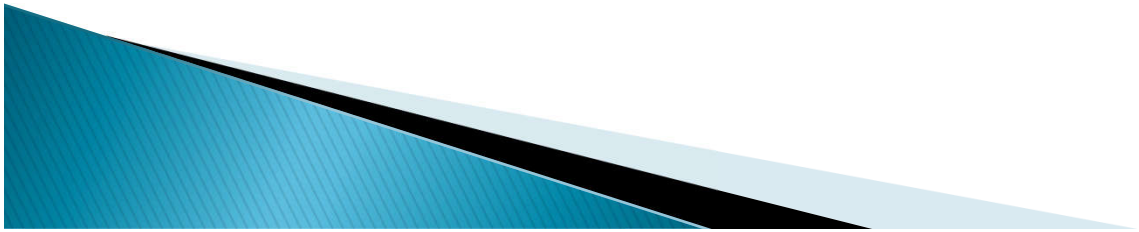
- Local Repeaters
- Talk groups
- Codeplugs &
- How Customize Them

Please hold your **Questions** & **Comments** until the end



# NOT Covered in this Presentation

- Hot Spots (MMDVM)
- Open Spots
- Zum Spots
- Brandmeister System



# Elmer Help Available

- Join “PNWdigital groups.io” https://dmr.groups.io/g/PNW

- More in depth help available on the fourth Saturday of each month.
  - *Technical Classes – Fisheries 1 from 9-12.*

# User Radios

- Motorola has many different products which can be purchased via eBay or Ham Friendly dealers (Motorola CPS is very expensive)
- Connect Systems offer a handheld and mobile.
- Anytone also has a popular handheld and mobile.
- TYT (aka Tytera) has several different affordable products
- Baofeng are not encouraged.

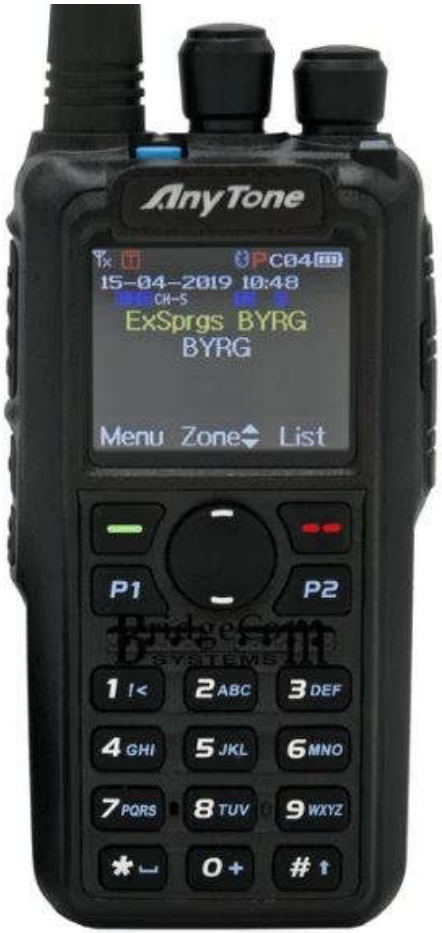
# User Radios

- All of these radios are commercial radios that the manufactures have adapted to the Amateur market.
- Some of the adaptations are the greatly increased contact list.

# User Radios -TYT


# User Radios -Anytone





# User Radios – Connect System

# User Radios – Motorola Portables

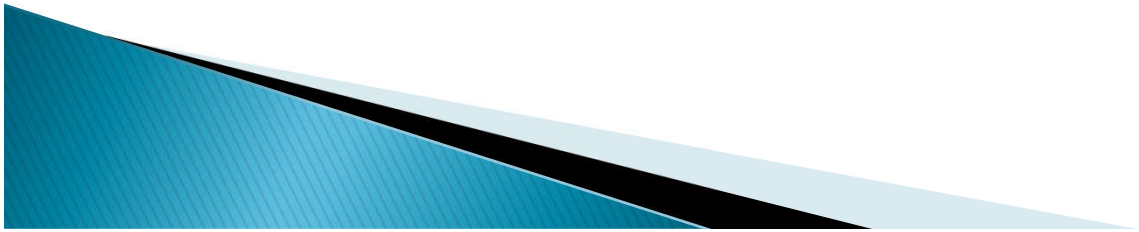

# User Radios – Motorola Mobile


# First Thing!

- You need to get a DMR ID Number from RadioID.net.
- You can't do much until you get one.
- There are nearly 800 DMR ID's in Oregon.

# Repeaters in the Area

Mt Hood Medical Center
N7LF
443.1000Mhz + 5Mhz
Color Code 1
PNWdigital Network
I-84 Group
Open Rpt. (Privately Owned)



# Repeater in the Area

Mt. Scott

KA7AGH

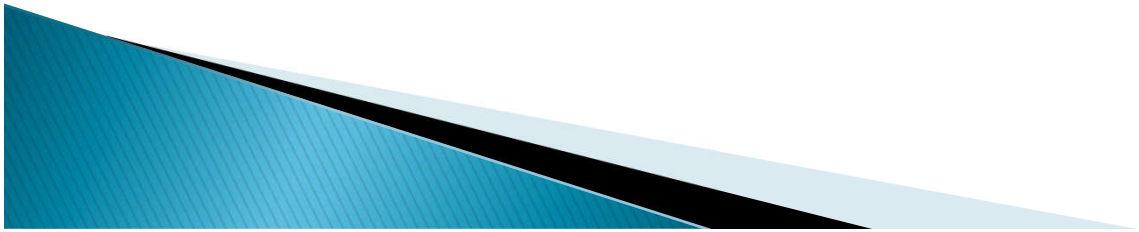
441.3250Mhz +5Mhz

Color Code 7

PNWdigital Network

I-84 Group

Open Rpt. (Privately Owned)



# Repeaters in the Area

Providence Medical Center

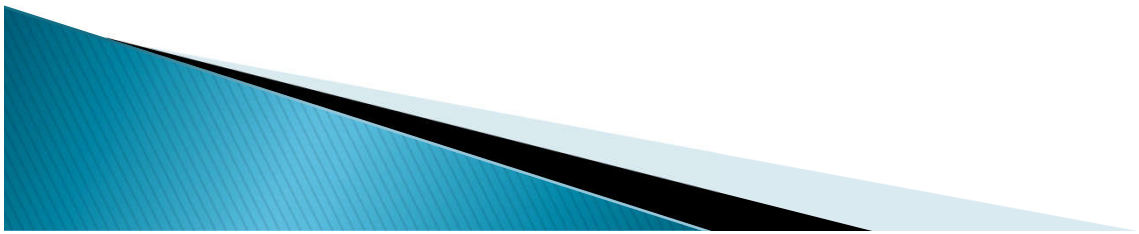
443.8375Mhz +5Mhz

Color Code 7

PNWdigital Network

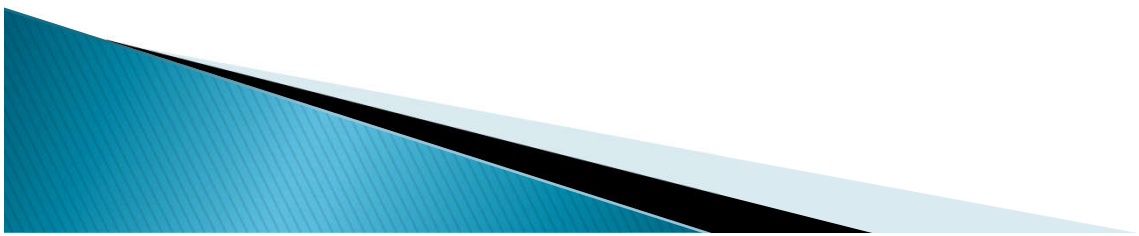
I-84 Group

Open Rpt. (Privately Owned)



# Repeaters in the Area

Lookout Point
N7LF
444.1500 +5Mhz
Color Code 1
PNWdigital Network
I-84 Group
Open Rpt. (Privately Owned)



# Repeaters in the Area

West Hills

K7RPT

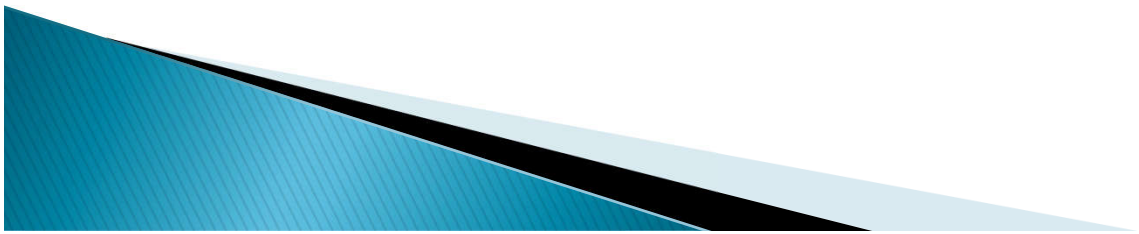
440.51350 +5Mhz

Color Code 1

PNWdigital Network

I-84 Group

Open Rpt (ARRG partnership)

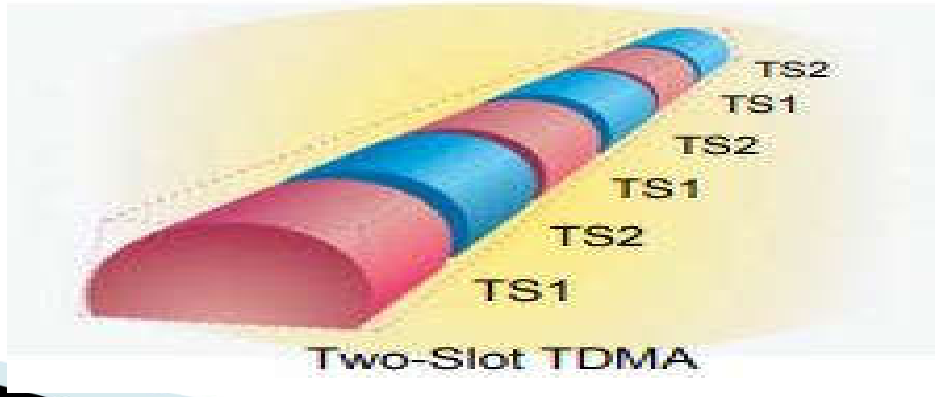


# Repeaters in the Area

There are several other sites in consideration. These will on the be PNWdigital Network.

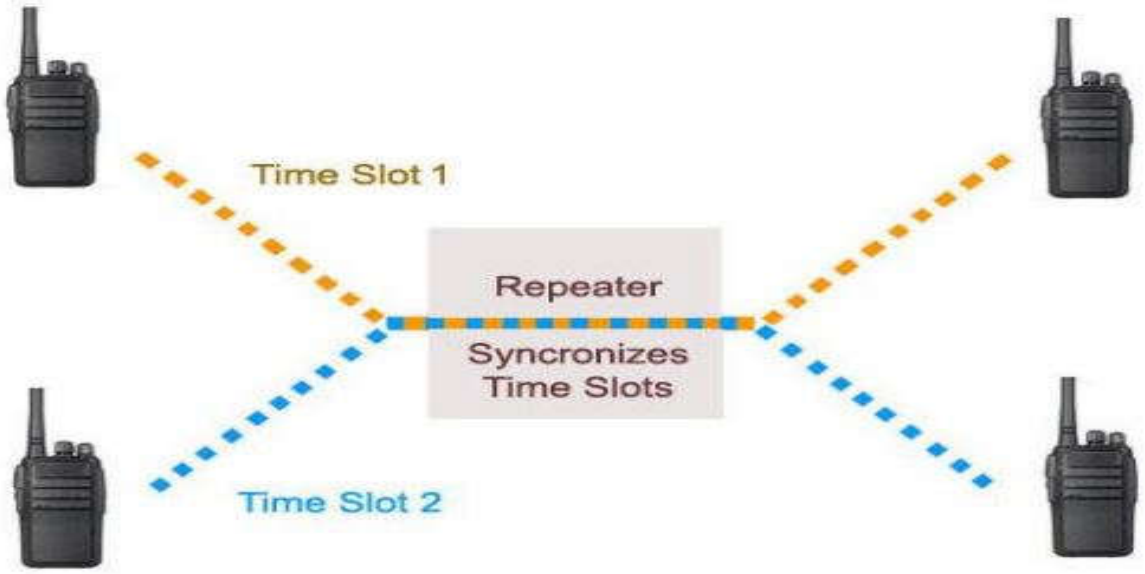
# Time Slots

- There are two time slots which allow two QSOs on the same repeater at the same time.
- This is accomplished by TDMA modulation (first time slot 1, then time slot 2)  The timeslots alternate in 30ms blocks.



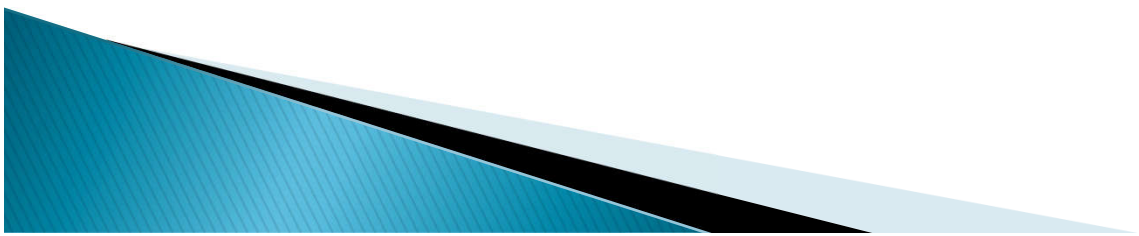
# Time Slots

- When you transmit you transmit in 30ms then off for 30ms.
- This means that your battery last longer.



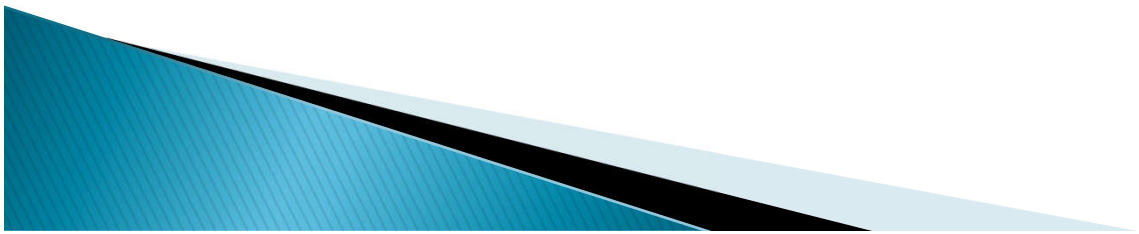
# DMR Number & Contacts

- You must get a DMR Number from RadioID.
- Talk groups have DMR numbers just like you.
- Contacts are both Talk Groups and Personal IDs
- Talk group IDs are assigned a time slot unlike personal ID which can be used on either time slot



# Talkgroup Examples

| Talkgroup/TG viewer | TG ID | TS | Timing |
|---|---|---|---|
| Local 1 | 3181 | 1 | F/5 |
| Oregon 1 (bm) | 3141 | 1 | F/3m |
| British Columbia 1 | 3027 | 1 | P15/3m |
| California Statewide 1 (bm) | 3106 | 1 | P15/3m |
| Cascades East 1 | 3191 | 1 | P15/3m |
| Comm 1 | 3777215 | 1 | P15/3m |
| Idaho 1 (bm) | 3116 | 1 | P15/3m |
| I-5 | 3168 | 1 | F/3m |
| Parrot 1 | 9998 | 1 | P2/0 |
| Washington Statewide 1 | 3153 | 1 | P15/3m |



# Talkgroup Example

F= Full Time
P =Part Time Talkgroup
1st #= Is How Long the TG is Active
2nd # = Is Hold Off Time

| Talkgroup/TG viewer | TG ID | TS | Timing |
|---|---|---|---|
| Audio Test 2 | 9999 | 2 | P2/0 |
| Baynet 2 (bm) | 31075 | 2 | P15/3m |
| Bridge 2 (bm) | 3100 | 2 | P15/3m |
| I-84 | 31419 | 2 | F/3m |
| Local 2 | 3166 | 2 | F/5 |
| Mountain 2 | 3177 | 2 | P15/3m |
| Montana 2 (bm) | 3130 | 2 | P15/3m |
| MPRG 1 on 2 (bm) | 31301 | 2 | P15/3m |
| Net 2 (bm) | 31002 | 2 | Nets Only |
| North America 2 | 3163 | 2 | P15/3m |
| PNW Regional 2 (bm) | 31771 | 2 | P15/3m |
| SoCal 2 | 31066 | 2 | P15/3m |
| TAC 1 | 8951 | 2 | P15/3m |
| TAC 2 | 8952 | 2 | P15/3m |
| TAC 3 | 8953 | 2 | P15/3m |
| TAC 310 (dmrx & bm) | 310 | 2 | P15/3m |
| TAC 311 (drmx 7 bm) | 311 | 2 | P15/3m |
| TAC 312 (drmx 7 bm) | 312 | 2 | P15/3m |
| USA 2 (MIT) | 1776 | 2 | P15/3m |
| Utah Statewide 2 (bm) | 3149 | 2 | P15/3m |
| Washington 2 | 103153 | 2 | P15/3m |
| Worldwide 2 | 3161 | 2 | P15/3m |
| Worldwide English 2 | 13 | 2 | P15/3m |

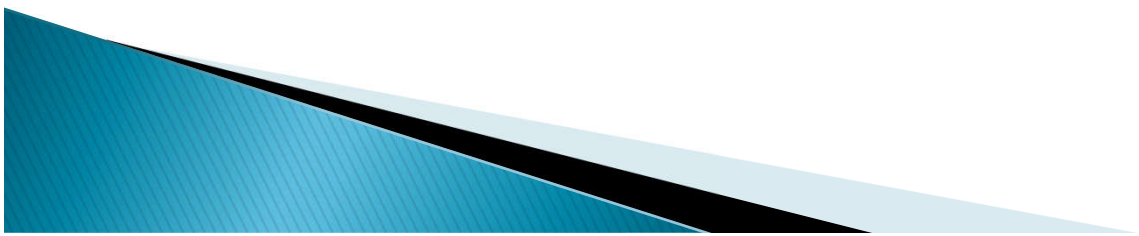
# More on Talkgroups

- Quick hopping between Talkgroups can cause several timers to be activate.
- It is good practice to announce what talk group you are on, so those using the monitor and scan functions can respond to you.

| No. | TG/DMR ID | Call Alert | Name | Call Type |
|---|---|---|---|---|
| 1 | 3181 | None | Local 1 | Group Call |
| 2 | 3166 | None | Local 2 | Group Call |
| 3 | 9999 | None | Audio Test | Group Call |
| 4 | 3027 | None | BC 1 | Group Call |
| 5 | 3106 | None | CA State 1 | Group Call |
| 6 | 3191 | None | Cascade East | Group Call |
| 7 | 3116 | None | Idaho 1 | Group Call |
| 8 | 3168 | None | I-5 | Group Call |
| 9 | 31419 | None | I-84 | Group Call |
| 10 | 3141 | None | Oregon 1 | Group Call |
| 11 | 9998 | None | Parrot | Group Call |
| 12 | 3187 | None | PNW 1 | Group Call |
| 13 | 103187 | None | PNW 2 | Group Call |

# Code Plugs

- Code plugs are the name for the program that you load into the radio
- CPS is the common name for the software used to make the code plug (Customer Programming Software)
- You can obtain a code plug from various websites, from friends, build you own, or do a combination of all of the above

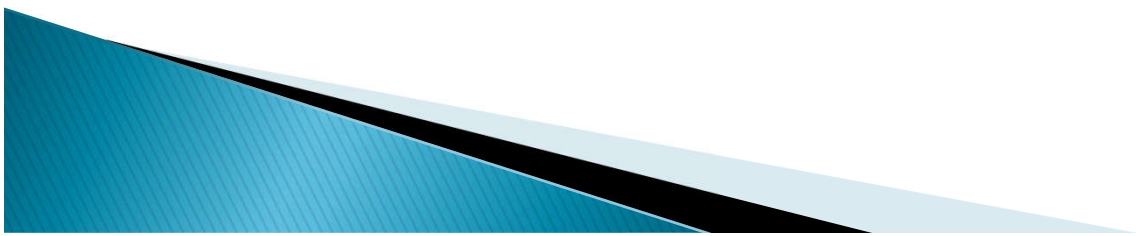


# What You Need to Build a Code Plug

- A DMR ID from RadioID (you can have 2)
- What talk groups you want (you may not want to have all the available talk groups)
- What a Talk Permit tone is and how to use it
- What “Admit Criteria” is and how to set it. (AKA TX permit-TX Admit)
- How you want to arrange your “Zones”
- Get the “contact list”
- Color Code
- RX Groups


# Admit Criteria

- The “Admit Criteria” determines when your radio is allowed to transmit.
- The recommended setting for repeater channels is *Color Code Free*; this configures your radio to be polite to your own digital system.
- You should configure your “In Call Criteria” to *Follow Admit Criteria*.
- Simplex channels should be configured as *Always* for both “Admit Criteria” and *Always* or *Follow TX* for “In Call Criteria”

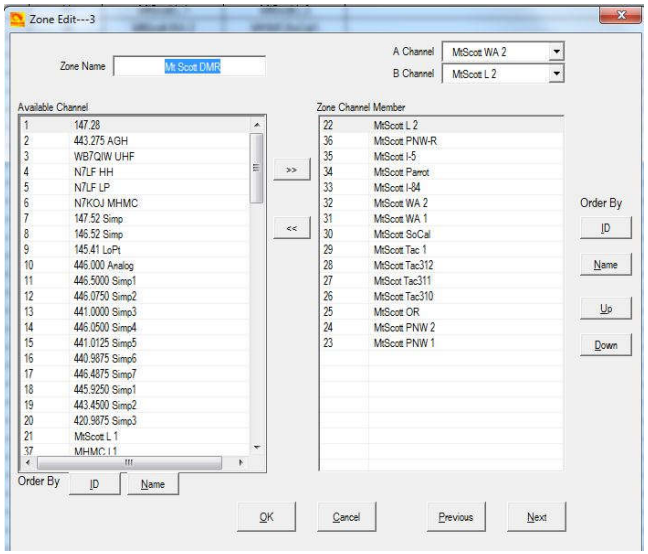


# Color Code

- Color code is compared to CTCSS (PL tones) or DCTCSS in an analog world.
- There are 16 color codes.
- Color codes are MANDATORY.
- Most repeaters seem to use Color Code 1, however not always. Check with the repeater operator.


# Zones

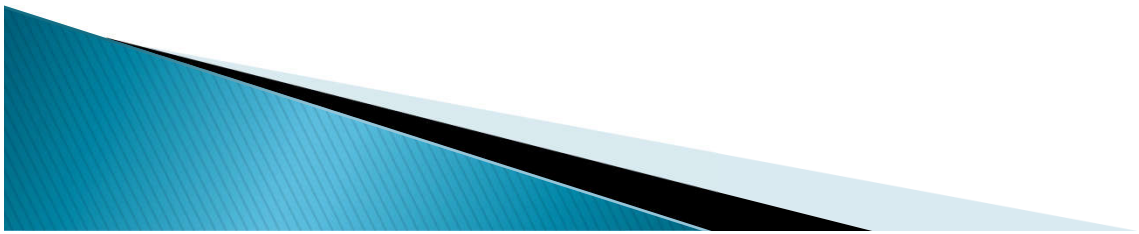
- Might be all the TG on a TS1or TS2 on a repeater
- OR all the TG on both TS1 & TS2 on a repeater
- Or all of one TG on all the local repeaters in the area
- Or mix & match all of the above



# Contact List

- Is the list of all the DMR ID and the associated Call Signs and Names for every person on DMR in the world!
- Plus a list of all the talk groups
- Of course you also need to know the limits of you radio so you can delete some of these

Motorola=1000 contacts
Anytone= 200,000 contacts
TYT=1000 Contacts (Hacking can yield more)
CS800D=130,000

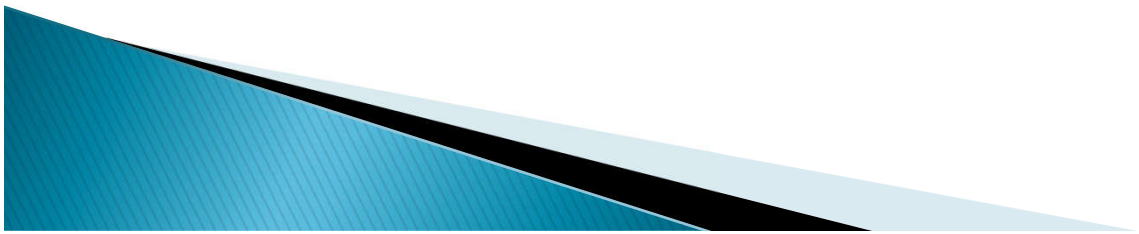


# RX Groups

- If you have an at-d878uv it best to say “None”
- With other radios you have, you will be forced to create a RX group list.
- Usually the RX group list is the same as the contact list talk groups
- However if you want to hear activity on other talkgroups you can add them to list.
- Example: RX group “Local 1” could have in it Local 1, Oregon 1, Wash1, & PNW 1

# Building Your Codeplug

- Enter your DMR ID & Call
- Enter your Talkgroups (& RX groups)
- Enter the channels (one for each TG on a Rpt)
- Create channels for the club & other analog Rpt
- Create Zones and populate them with channels
- Run thru the list of options for buttons & set them up
- Scan list can set up later
- Lets test it out and look for mistakes

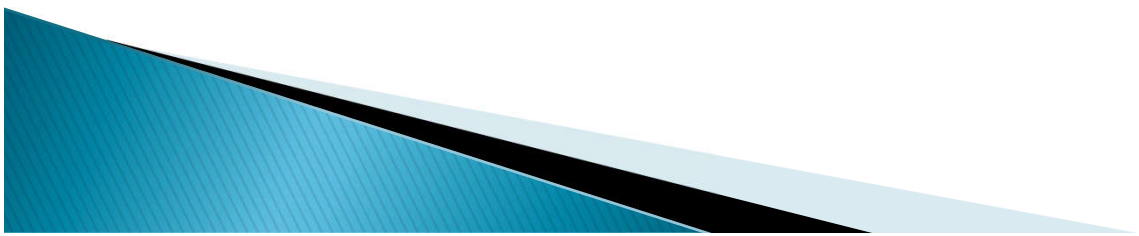


# Parrot


- A special talk group for testing.
- When you transmit to Parrot talkgroup it records you and then retransmits it back to you in a few seconds
- The special server that does this in the PNWdigital network is called “Polly”

# PNW Digital Network

- The local repeaters are connected to a the PNW Digital Network via an IP connection. Now it is the internet but we are working toward an all ham network (perhaps HamWan).
- All the data is routed to a device called a “C-Bridge” which steers the data to all the proper locations.



# C-Bridge

- The “C-Bridge” uses individual managers for each repeater.
- You can monitor what is happening on the network by connecting to Netwatch.
- http://www.pnwdigital.net/welcome.html then choose netwatch on the top

# Shall we look at a CPS?