DMR CodePlug 101 AnyTone AT-D878UV

Code Plug Basics for the AnyTone 868/878

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- Part II: So you got a new radio, now what?
- Part III: Code Plug management
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- Part IV Setting up Roaming
- Part V Setting up Digital APRS
- Part VI Programmable bells and whistles

AT D878 CodePlug 101

Part I

Introduction to basic concepts

Basic Concepts (1)

- Code Plug: This is the program that is loaded into the radio to define it's operational "personality", in terms of Zones, Channels, Scanning, etc.

- CPS (Customer Programming Software): This is the Software that runs on a PC and is used to create, load and maintain the "Code Plug".
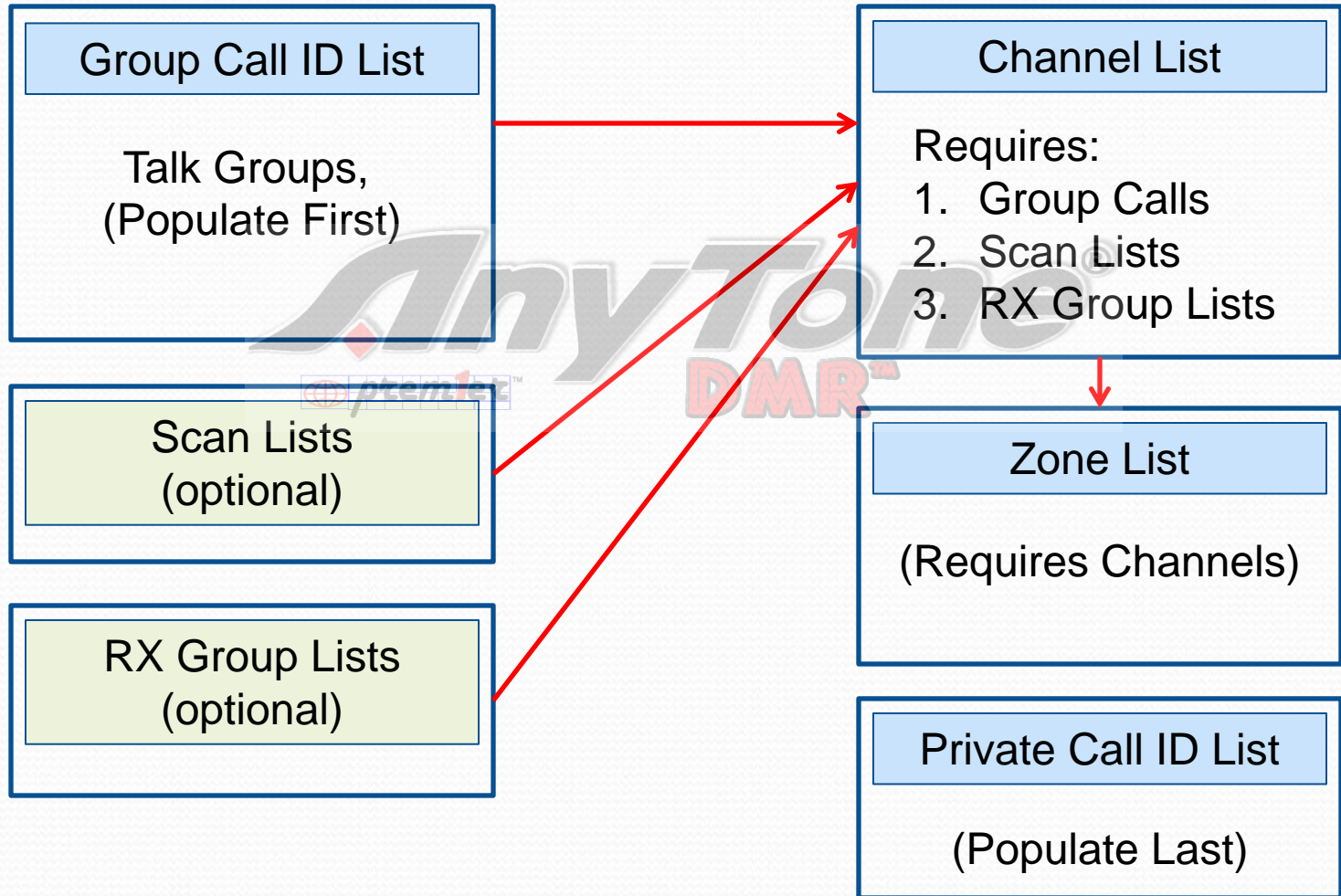
Basic Concepts (2)

- Zones: Folders containing channels
  - Collects together a group of channels
  - Often dedicated to a physical repeater
  - Sometimes dedicated to a specific location
  - May contain DMR and Analog channels
- Channels: specific talk setup within a zone
  - Digital: Frequency, Color Code, Talk Group
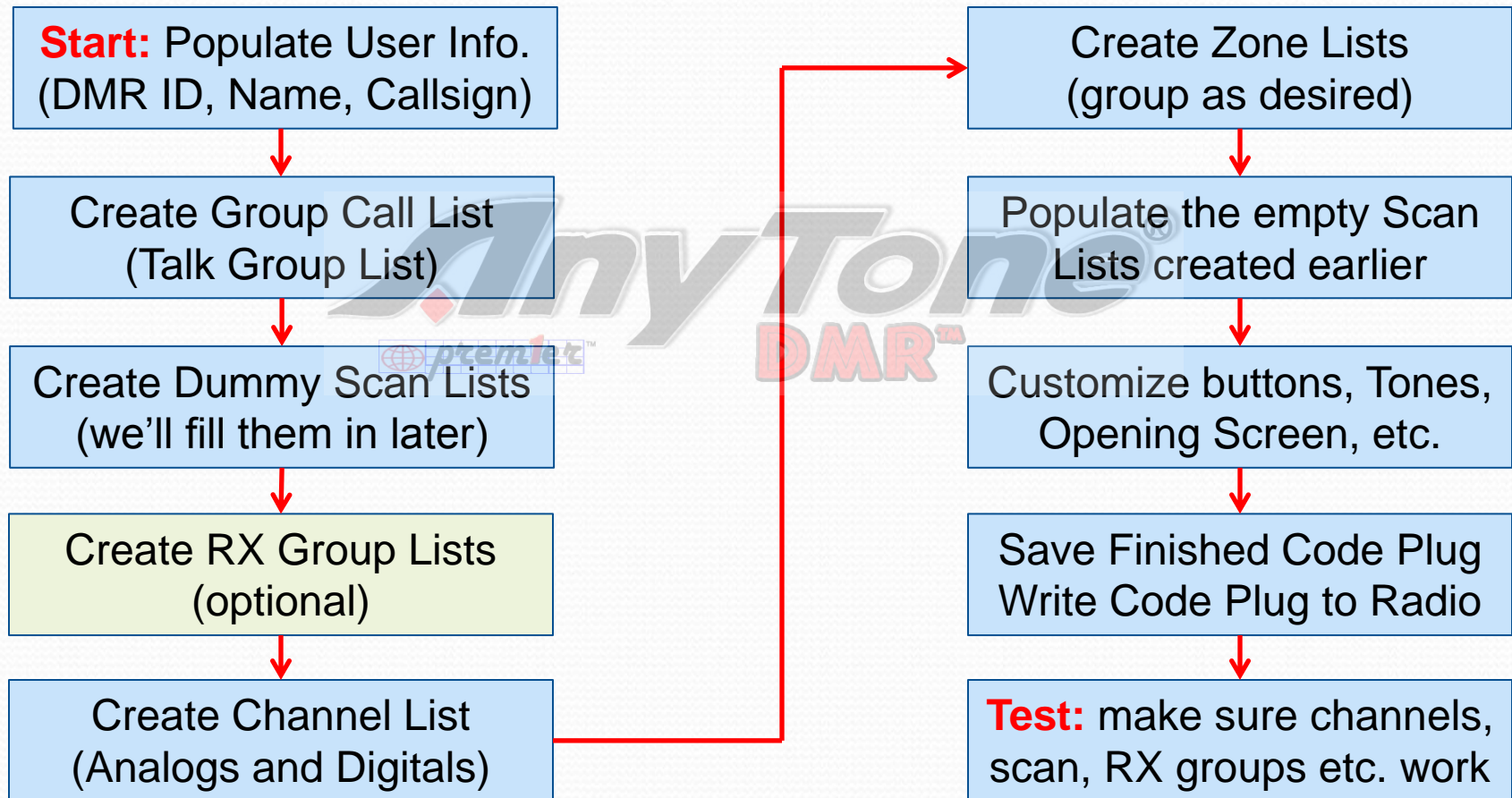 - Analog: Frequency, PL Tone/DCSS

Basic Concepts (3)

- Scan Groups: Defines channels to scan
  - Each channel references a specific SG
  - There may be a max number of channels
  - Scan is usually focused on a specific Zone
- Contacts: DMR offers several types but only two are used in amateur radio:
  - Private Call: User ID / Call Sign
  - Group Call: Talk Group Name / TG ID #

Database relationships

Group Call ID List		Channel List
Talk Groups, (Populate First)	→	Requires: 1. Group Calls 2. Scan Lists 3. RX Group Lists

Scan Lists (optional)		Zone List
		(Requires Channels)

RX Group Lists (optional)		Private Call ID List
		(Populate Last)

DMR Code Plug Workflow

Start: Populate User Info. (DMR ID, Name, Callsign)

↓

Create Group Call List (Talk Group List)

↓

Create Dummy Scan Lists (we'll fill them in later)

↓

Create RX Group Lists (optional)

↓

Create Channel List (Analogs and Digitals)

→

Create Zone Lists (group as desired)

↓

Populate the empty Scan Lists created earlier

↓

Customize buttons, Tones, Opening Screen, etc.

↓

Save Finished Code Plug Write Code Plug to Radio

↓

Test: make sure channels, scan, RX groups etc. work

AnyTone CPS opening Screen

D878UV[D878UV:UHF{400 - 480 MHz} VHF{136 - 174 MHz}][:C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181222_AT878_KC6Nc.rdt]

File   Model   Set   Program   Tool   View   Help

D878UV
- Public
  - Channel
  - Zone
  - Scan List
  - Roaming Zone
  - FM
  - Auto Repeater Offset Frequer
  - Roaming Channel
  - Basic information
  - Optional Setting
  - Alarm Setting
  - Local Information
  - Hot Key
- Digital
- Analog

Folder Tree

Channel list panel
You will create and configure your channels here

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name	Contact	Radio ID	Optional Signal
1	146.52000	146.52000	A-Analog	High	25K	Off	Off	146.520 Analog	World TG1	KC6N	
2	446.00000	446.00000	A-Analog	High	25K	Off	Off	446.0000 Analog	World TG1	KC6N	
3	446.50000	446.50000	A-Analog	High	25K	Off	Off	446.5000 Analog	World TG1	KC6N	
4	441.00000	441.00000	A-Analog	High	25K	Off	Off	441.0000 Analog	World TG1	KC6N	
5											
6	433.45000	433.45000	D-Digital	High	12.5K	Off	Off	DMR 433.4500	DIRECT MODE	KC6N	
7	438.95000	438.95000	D-Digital	High	12.5K	Off	Off	DMR 438.9500	DIRECT MODE	KC6N	
8	438.97500	438.97500	D-Digital	High	12.5K	Off	Off	DMR 438.9750	DIRECT MODE	KC6N	
9	439.00000	439.00000	D-Digital	High	12.5K	Off	Off	DMR 439.0000	DIRECT MODE	KC6N	
10	439.02500	439.02500	D-Digital	High	12.5K	Off	Off	DMR 439.0250	DIRECT MODE	KC6N	
11	439.05000	439.05000	D-Digital	High	12.5K	Off	Off	DMR 439.0500	DIRECT MODE	KC6N	
12	441.00000	441.00000	D-Digital	High	12.5K	Off	Off	DMR 441.0000	DIRECT MODE	KC6N	
13	441.01250	441.01250	D-Digital	High	12.5K	Off	Off	DMR 441.0125	DIRECT MODE	KC6N	
14	446.07500	446.07500								KC6N	
15	446.50000	446.50000									
16	446.51250	446.51250								KC6N	
	446.58000	441.58000								KC6N	
	446.76000	441.76000	A-Analog	High	25K	127.3	127.3	PAPA 3	World TG1	KC6N	
20	445.42000	440.42000	A-Analog	High	25K	127.3	127.3	PAPA 4	World TG1	KC6N	
21	449.28000	445.28000	A-Analog	High	25K	127.3	127.3	PAPA 5	World TG1	KC6N	
22	446.76000	441.76000	A-Analog	High	25K	Off	156.7	PAPA 6	World TG1	KC6N	
23	446.38000	441.38000	A-Analog	High	25K	156.7	156.7	PAPA 7	World TG1	KC6N	
24	445.14000	440.14000	A-Analog	High	25K	127.3	127.3	PAPA 8	World TG1	KC6N	
25	446.58000	441.58000	A-Analog	High	25K	Off	156.7	PAPA 9	World TG1	KC6N	
26	448.54000	443.54000	A-Analog	High	25K	91.5	91.5	PAPA 10	World TG1	KC6N	
27	449.38000	444.38000	A-Analog	High	25K	100.0	100.0	PAPA 11	World TG1	KC6N	
28	446.58000	441.58000	A-Analog	High	25K	100.0	100.0	PAPA 14	World TG1	KC6N	
29	445.86000	440.86000	A-Analog	High	25K	100.0	100.0	PAPA 18	World TG1	KC6N	
30	448.88000	443.88000	A-Analog	High	25K	100.0	100.0	PAPA 19	World TG1	KC6N	
31											
32	446.58000	441.58000	A-Analog	High	25K	100.0	127.3	OAT P1	World TG1	KC6N	

Talk Groups(group call list):

No.	TG/DMR ID	Call Alert	Name	Call Type
1	1	None	World TG1	Group Call
2	2	None	Local	Group Call
3	3	None	NoAm TG3	Group Call
4	9	None	TalkGroup 9	Group Call
5	13	None	WORLD ENGLISH	Group Call
6	91	None	World Wide	Group Call
7	93	None	North America	Group Call
8	99	None	DIRECT MODE	Group Call
9	113	None	ENGLISH 1	Group Call
10	123	None	ENGLISH 2	Group Call
11	310	None	TAC 310	Group Call
12	3100	None	USA 3100	Group Call
13	3106	None	CA 3106	Group Call
14	3107	None	CA 3107	Group Call
15	3115	None	HI 3115	Group Call
16	3116	None	ID 3116	Group Call
17	3148	None	TX 3148	Group Call
18	3160	None	DCI.1 BM USA	Group Call
19	3162	None	DCI.2	Group Call
20	3166	None	DCI LOCAL2	Group Call
21	3168	None	I 5	Group Call
22	3176	None	SOUTHWEST	Group Call
23	3177	None	MOUNTAIN	Group Call
24	3181	None	DCI LOCAL 1	Group Call

Click "Talk Groups"

Click "Talk Groups" in the menu tree as shown and add your group call ID's as shown to the left. If your radio is un-programed you will need to add the ones you need. Otherwise it will have some entries as shown here. You will reference this list when you program your channels.

Example: Group Call North America, Call ID (TG)=3

Scan Lists:

Available Channels

Included in Woodson "Scan Group"

Each channel *may* reference a scan list (but doesn't have to). A scan list is a list of channels that will be scanned when a channel referencing that list is selected (and "scan" is enabled).

A scan list generally scans a collection of channels within a specific zone and can include both analog and digital channels and a mix of channels from different repeaters. Most of the time it will pick up channels from a given repeater as shown here for PAPA Woodson. There may be a limit to how many channels your radio can have in a given scan group (16 is not uncommon).

D878UV[D878UV:UHF{400 - 480 MHz} VHF{136 - 174 MHz}][:C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181222_AT878_KC6Nc.rdt]

File   Model   Set   Program   Tool   View   Help

D878UV
- Public
  - Channel
  - Zone
  - Scan List
  - Roaming Zone
  - FM
  - Auto Repeater Offset Frequer
  - Roaming Channel
  - Basic information
  - Optional Setting
  - Alarm Setting
  - Local Information
  - Hot Key
- Digital
- Analog

No.	Name	Channels	Priority Channel 1	Priority Channel 2	Look Back Time A[s]	Look Back Time B[s]	Dropout Delay Time[s]	Dwell Time[s]
1	Woodson	8	Off	Off	2.0	3.0	3.1	3.1
2	BlueRidge	4	Off	Off	2.0	3.0	3.1	3.1
3	Lukins	4	Off	Off	2.0	3.0	3.1	3.1
4	OatMt	4	Off	Off	2.0	3.0	3.1	3.1
5	Otay	4	Off	Off	2.0	3.0	3.1	3.1
6	PlmSprings	4	Off	Off	2.0	3.0	3.1	3.1
7	Palomar	4	Off	Off	2.0	3.0	3.1	3.1
8	PalomarMM	4	Off	Off	2.0	3.0	3.1	3.1
9	PAPA Portable	4	Off	Off	2.0	3.0	3.1	3.1
10	PAPA Saddle	4	Off	Off	2.0	3.0	3.1	3.1
11	San Marcos	4	Off	Off	2.0	3.0	3.1	3.1
12	SantaBarbara	4	Off	Off	2.0	3.0	3.1	3.1
13	Santiago	4	Off	Off	2.0	3.0	3.1	3.1
14	Sunset	4	Off	Off	2.0	3.0	3.1	3.1
15	ToroPk	4	Off	Off	2.0	3.0	3.1	3.1

Scan Edit---1

Scan List Name   Woodson

Available Channel

1	146.520 Analog
2	446.0000 Analog
3	446.5000 Analog
4	441.0000 Analog
6	DMR 433.4500
7	DMR 438.9500
8	DMR 438.9750
9	DMR 439.0000
10	DMR 439.0250
11	DMR 439.0500
12	DMR 441.0000
13	DMR 441.0125
14	DMR 446.0750
15	DMR 446.5000
16	DMR 446.5125
18	PAPA 1
19	PAPA 3
20	PAPA 4
21	PAPA 5
22	PAPA 6
23	PAPA 7
24	PAPA 8

Scan Channel Member

179	WUD Local
180	WUD PAPA
182	WUD SoCal
184	WUD CA 3106
197	WUD Hangout
78	WUD DR0NK Otay
81	WUD K6XI 449.440
83	WUD P10 Pal

Order By   ID   Name

Order By: ID   Name   Up   Down

Priority Channel Select   Off
Priority Channel 1   Off
Priority Channel 2   Off
Revert Channel   Selected
Look Back Time A[s]   2.0
Look Back Time B[s]   3.0
Dropout Delay Time[s]   3.1
Dwell Time[s]   3.1

OK   Cancel   Previous   Next
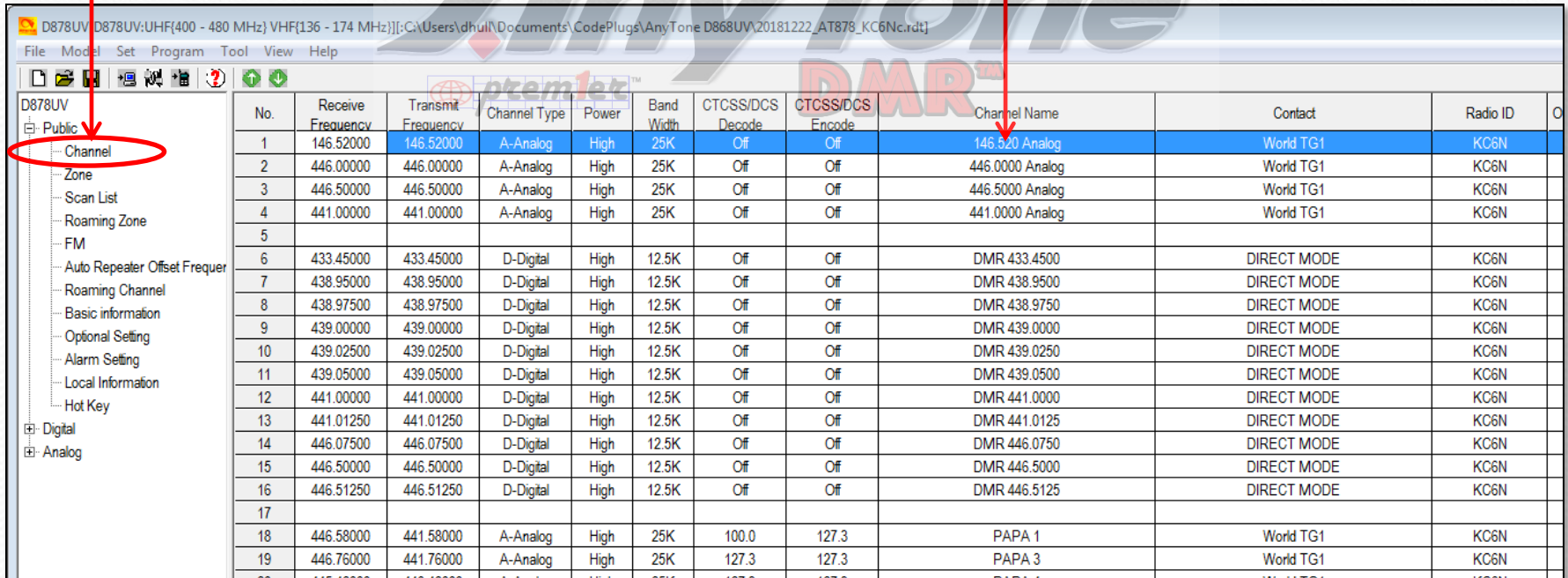
Channels:

Channels are displayed in spreadsheet form in the AnyTone CPS. A channel definition pop-up will appear if you double click on a line in the channel table. If the line is blank, you may create a new channel, if it is populated, you may edit the information for that channel. This will be shown on the next two pages.

Click Channel

Double Click channel entry to open edit window

D878UV[D878UV:UHF{400 - 480 MHz} VHF{136 - 174 MHz}][:C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181222_AT878_KC6Nc.rdt]

File   Model   Set   Program   Tool   View   Help

D878UV
⊟ Public
  Channel
  Zone
  Scan List
  Roaming Zone
  FM
  Auto Repeater Offset Frequer
  Roaming Channel
  Basic information
  Optional Setting
  Alarm Setting
  Local Information
  Hot Key
⊞ Digital
⊞ Analog

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name	Contact	Radio ID	O
1	146.52000	146.52000	A-Analog	High	25K	Off	Off	146.520 Analog	World TG1	KC6N	
2	446.00000	446.00000	A-Analog	High	25K	Off	Off	446.0000 Analog	World TG1	KC6N	
3	446.50000	446.50000	A-Analog	High	25K	Off	Off	446.5000 Analog	World TG1	KC6N	
4	441.00000	441.00000	A-Analog	High	25K	Off	Off	441.0000 Analog	World TG1	KC6N	
5											
6	433.45000	433.45000	D-Digital	High	12.5K	Off	Off	DMR 433.4500	DIRECT MODE	KC6N	
7	438.95000	438.95000	D-Digital	High	12.5K	Off	Off	DMR 438.9500	DIRECT MODE	KC6N	
8	438.97500	438.97500	D-Digital	High	12.5K	Off	Off	DMR 438.9750	DIRECT MODE	KC6N	
9	439.00000	439.00000	D-Digital	High	12.5K	Off	Off	DMR 439.0000	DIRECT MODE	KC6N	
10	439.02500	439.02500	D-Digital	High	12.5K	Off	Off	DMR 439.0250	DIRECT MODE	KC6N	
11	439.05000	439.05000	D-Digital	High	12.5K	Off	Off	DMR 439.0500	DIRECT MODE	KC6N	
12	441.00000	441.00000	D-Digital	High	12.5K	Off	Off	DMR 441.0000	DIRECT MODE	KC6N	
13	441.01250	441.01250	D-Digital	High	12.5K	Off	Off	DMR 441.0125	DIRECT MODE	KC6N	
14	446.07500	446.07500	D-Digital	High	12.5K	Off	Off	DMR 446.0750	DIRECT MODE	KC6N	
15	446.50000	446.50000	D-Digital	High	12.5K	Off	Off	DMR 446.5000	DIRECT MODE	KC6N	
16	446.51250	446.51250	D-Digital	High	12.5K	Off	Off	DMR 446.5125	DIRECT MODE	KC6N	
17											
18	446.58000	441.58000	A-Analog	High	25K	100.0	127.3	PAPA 1	World TG1	KC6N	
19	446.76000	441.76000	A-Analog	High	25K	127.3	127.3	PAPA 3	World TG1	KC6N	

Analog Channel detail:

Double click on a populated channel in the channel list and This dialog will appear.

RX Frequency

TX Frequency

Channel Type

TX Power Level

Channel BW

Admit Criteria

Scan List

Channel Name

TX Prohibit, Talk-around, etc.

Area pertaining to digital channels is grayed out

CTCSS (PL) setup Info.

Channel Information Edit---51

Channel Name: K6XI 449.440

Receive Frequency: 449.44000
Transmit Frequency: 444.44000
Correct Frequency[Hz]: 0

Channel Type: A-Analog
Transmit Power: High
Band Width: 25K
Busy Lock: Off
Scan List: None

Exclude channel from roaming: off

☐ TX Prohibit ☐ Talk Around ☐ Through Mode
☐ Work Alone

Digital
Contact: TAC 310
Radio ID: KC6N
Color Code: 1
Slot: Slot1
Receive Group List: None
Digital Encryption: Off
Encryption Type: Normal Encryption

☐ Simplex TDMA ☐ Call Confirmation ☐ Ranging
☐ TDMA Adaptive ☑ SMS Confirmation

Analog
CTCSS/DCS Decode: Off
CTCSS/DCS Encode: CTCSS 107.2
Squelch Mode: Carrier
Optional Signal: Off
DTMF ID:
2Tone ID: 1
5Tone ID: 1
PTT ID: Off

☐ Reverse

2TONE Decode: 1
Custom CTCSS: 251.1

OK   Cancel   Previous   Next

13

Digital Channel detail:

RX Frequency

TX Frequency

Analog/Digital

TX Power Level

Bandwidth

Admit Criteria

Double click on a digital channel to bring up this dialog.

Note that the Analog Channel Specifics are greyed out for digital Channels.

Scan List

Digital Channel Info

RX Group List

Channel Name

Talk Around

TX Contact (Talk Group)

DMR ID or User

Repeater Color Code

Channel Timeslot

Zones:

Click "Zone" in the folder tree to bring up the zone list as shown

Double click on a zone to bring up the "Zone Edit" dialog, PAPA Edom (Palm Springs) is shown below

Highlight items in the available channels list on the right and use these arrows to move channels to the zone list and back

Digital Contact List:

The AnyTone AT D878 is unique in that it separates Group Calls (Talk Groups) and Private Calls (Radio ID's) into separate databases. Private calls associate a radio ID with a call sign (and other information) as shown below. This radio can hold up to 160,000 private call ID's which is quite a lot. Obviously, you cannot enter all these by hand so an automated methodology is required (and exists). However, you can add, move and edit by hand if need be. Use of this list is optional. If you don't care to see caller ID info, you can leave it empty – many users do.

Click "Digital Contact List"

Typical "Private Call" entry.

No.	TG/DMR ID	Call Alert	Name	City	Call Type	Repeater Number	State/Prov	Country	Remarks
1	0	None			Private Call				
2	6034	None	Nigel Utting	St. Saviour	Private Call	GJ7LJJ	Jersey	United Kingdom	
3	44300	None	Andy	Deeside	Private Call	GW1SYG		United Kingdom	
4	1023001	None	Wayne Edward	Toronto	Private Call	VE3THW	Ontario	Canada	DMR
5	1023002	None	Mathieu Goulet	Ottawa	Private Call	VA3ECM	Ontario	Canada	CCS7
6	1023003	None	Guy Charron	Gloucester	Private Call	VE3QC	Ontario	Canada	CCS7
7	1023004	None	Louella Noble	Little Current	Private Call	VE3LDY	Ontario	Canada	DMR
8	1023005	None	Jeffrey Noble	Little Current	Private Call	VE3JFN	Ontario	Canada	DMR
9	1023006	None	Allan Harvey	Sparta	Private Call	VA3UZ	Ontario	Canada	DMR
10	1023007	None	Hans Bockholt	Cornwall	Private Call	VA3BOC	Ontario	Canada	DMR
11	1023008	None	Mark Robinson	Niagara Falls	Private Call	VE3JMR	Ontario	Canada	DMR
12	1023009	None	Rolando Parib	Scarborough	Private Call	VA3AMO	Ontario	Canada	DMR
13	1023010	None	Rolando Parto	Scarborough	Private Call	VA3AMO	Ontario	Canada	DMR
14	1023013	None	Barry Brousseau	Guelph	Private Call	VE3SLD	Ontario	Canada	DMR
15	1023014	None	Diane Bruce	Nepean	Private Call	VA3DB	Ontario	Canada	DMR
16	1023015	None	Friedrich Vogler	Ajax	Private Call	VE3FVD	Ontario	Canada	DMR
17	1023016	None	John Christensen	Almonte	Private Call	VE3IAO	Ontario	Canada	DMR
18	1023017	None	John Visser	London	Private Call	VA3MSV	Ontario	Canada	DMR
19	1023018	None	Jacqualine Norma	Nestleton Stati	Private Call	VA3BTQ	Ontario	Canada	DMR

Tree panel:
- D878UV
  - Public
  - Digital
    - Radio ID List
    - Talk Groups
    - Prefabricated SMS
    - Receive Group Call List
    - Encryption Code
    - Digital Contact List
      - 1---20000
      - 20001---40000
      - 40001---60000
      - 60001---80000
      - 80001---100000
      - 100001---120000
      - 120001---140000
      - 140001---160000
    - Friends List
    - Talk Alias
  - Analog

AT D878 CodePlug 101

Part II

So, you got a new radio – now what?

(Saving your current code plug, loading a known good plug)
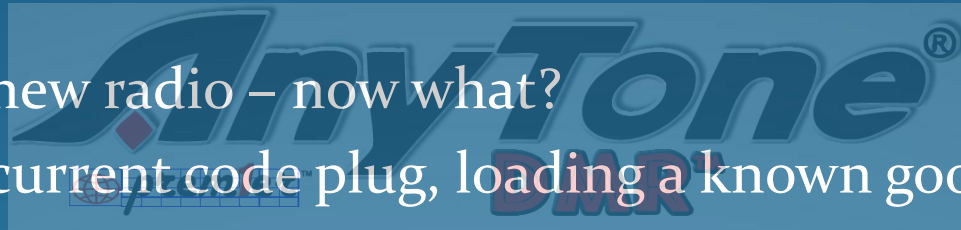
New radio – first steps (1)

- Unpack radio and charge the battery
- Download and install the USB driver
- Download and install the CPS
- Connect the USB cable to your radio
- Connect the other end to your computer
- Turn on your radio, wait for the radio to connect.

New radio – first steps (2)

- Launch the CPS

- Set your serial port.

- Read the radio and save the Virgin Code Plug.

- Load the new code plug

- Set your DMR ID

- Test the radio

Set your Comm Port:
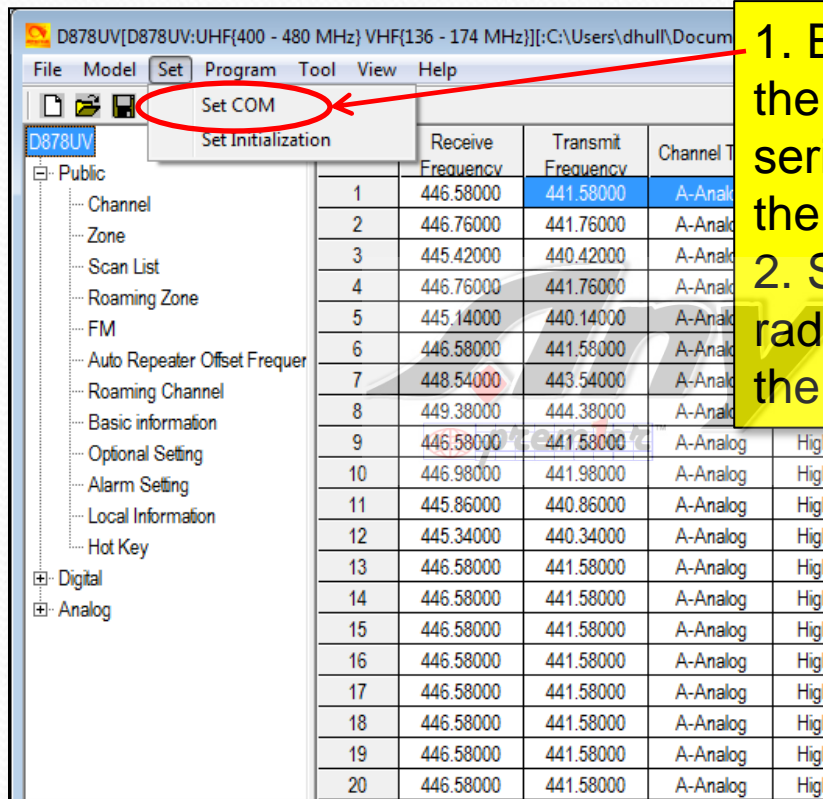
1. Before you can do anything with the UV-878 you have to set up the serial port. Click "Set COM" under the Set Pull-down.

2. Select the comm port for your radio from the options provided in the pop-up.
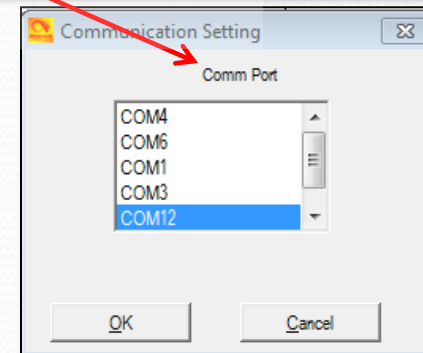
NOTE: Mine is usually COM12 but this will depend on your computer. You may want to try this with your radio off and note the com ports present. Then turn the radio on and do it again. The correct port should be the new one that showed up. You will need to have installed the driver.

Save your initial code plug:
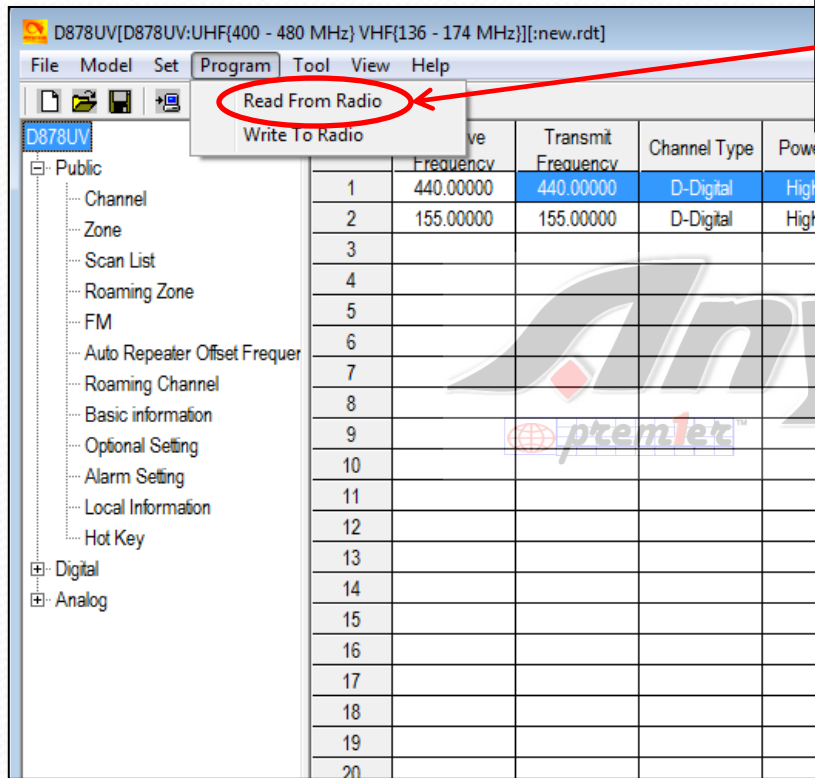
1. In CPS, Click "Read From Radio"
2. Click, OK, and follow the dialogs
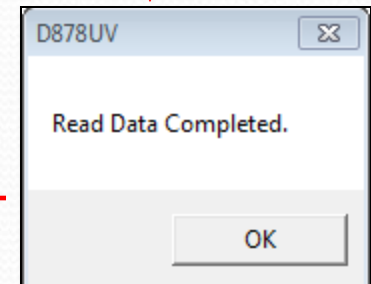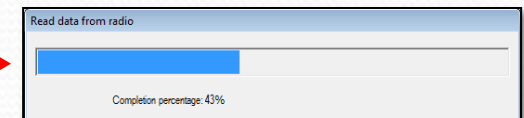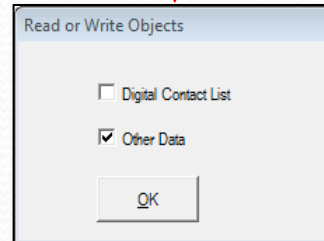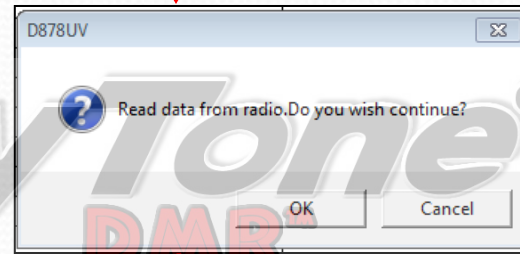
3. Click "File", "Save As", give it a name like "20190218_*YourCall*_AT-878_VirginCP".
Now you have a record of the un-programmed code plug for reference.

Load your new code plug

- Locate a code plug that you like
    - Download from a web site
    - From a friends radio
    - Write from scratch
- Add your DMR ID
- Save your (now customized) code plug
- Flash the new code plug into the radio.

Add *your* DMR User ID:

Select "Radio ID List" under "Digital" in the tree

Add Your DMR ID and Call Sign to the list.

You can add as many as you like, but only one can be active at time. You will select which one via a menu option from the key pad. This is an AnyTone UV-8x8 series unique feature which is sort of nice.

Once you have done this, save your new code plug and write it to your radio as shown on the next slide.

Load your new code plug:

1. In CPS, Click "Write to Radio"
2. Follow the dialogues

3. Save your new code plug. Give it a name like "20190218_*YourCall*_AT-878". So you have a copy of the code plug for reference and further customization.

You should be good to go

- Make sure your analog channels work

- You can check the digital channels by looking at a "last heard" website such as Brandmeister.

- Pop onto California (or other active talk group) and ask for a radio check.

- If you have loaded a pre-built code plug, then you are done – enjoy your radio!

AT D878 CodePlug 101

Part III

Code Plug management concepts

Code Plug Creation

- The workflow for code plug creation is:
  - Enter your User ID (Section II)
  - Enter the contact data (specifically the talk-groups). Private calls are optional.
  - Create a blank Scan List and a blank Zone
  - Create the channels for the zone
  - Populate the Zone and Scan Lists
  - Configure the programmable buttons
  - *Remember to save periodically*

AT D878 CodePlug 101

Part IIIa

Code Plug Management Concepts

(Creating and Managing Group ID's)

Contact Basics

- Contact information determines how your radio interacts with the DMR network
- Contacts come in four flavors:
  - **Private Call:** Calls to (or from) single radios (your "Contact List")
  - **Group Call:** Calls to Groups of users (your selection of Talk Group ID's)
  - **All Call:** Not _usually_ used in Ham Radio
  - **Broadcast Call:** Not used in Ham Radio

Contacts (group/private Calls):

The "Virgin" form, has the single default entry shown here.

2. Double Click any entry (or blank line) to get the Talk Group edit dialog. Enter or Edit the TG info then click <u>O</u>K or <u>N</u>ext.

1. Click "Talk Groups" to get the Talk Group entry form.

Adding contacts

- We will add the following contacts to a "virgin" code plug:
  - Talk Groups: Local, PAPA, SoCal, SoCal1, Cal 3106, CA 1, Zone6, Bridge, NoAmer, World, TAC310, BM Parrot GC, Direct 99 and San Diego Hangout.
- This will allow us to create Channels, as well as Scan and Zone Lists
- We will use the PAPA system TG profiles

PAPA Group Lineup

PAPA DMR Talkgroup / Timeslot Matrix

Click for a complete list of BrandMeister Talkgroups

Time Slot 1

Talkgroup	ID
California	TG 3106
California-1	TG 31061
Call Zone 6	TG 31096
North America	TG 93
Worldwide	TG 91
TAC 310	TG 310
USA/3100	TG 3100
EMCOM	TG 9911
Static	
Dynamic	

Use Slot 1 for conecting to other BrandMeister talkgroups

Time Slot 2

Talkgroup	ID
PAPA Chat	TG 31077
SoCal	TG 31066
SoCal 1	TG 31067
PAPA Bridge	TG 31078
Local	TG 2
Static	
Dynamic	

The talk group ID for the San Diego Hangout TG is 310014

Contacts (group Calls):

1. Open the Talk Group entry form.
2. Double Click on an entry line to edit an existing entry. Double click on a blank line to create a new entry.
3. Right click any entry to bring up a menu of management options

Populate the Group Call List:

Step down through the list, double click each line, Fill in "Name", "Call Type" and "TG/DMR ID" for each entry as shown here.

Final Populated Group Call List:

D878UV[D878UV:UHF{400 - 480 MHz} VHF{136 - 174 MHz}][:C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181204_AT878_KC6N_Virgi

File   Model   Set   Program   Tool   View   Help

D878UV
- Public
  - Channel
  - Zone
  - Scan List
  - Roaming Zone
  - FM
  - Auto Repeater Offset Fre
  - Roaming Channel
  - Basic information
  - Optional Setting
  - Alarm Setting
  - Local Information
  - Hot Key
- Digital
  - Radio ID List
  - Talk Groups
  - Prefabricated SMS
  - Receive Group Call List
  - Encryption Code
  - Digital Contact List
    - 1---20000
    - 20001---40000

No.	TG/DMR ID	Call Alert	Name	Call Type	
1	3106	None	California	Group Call	
2	31061	None	CA1	Group Call	
3	31096	None	Zone 6	Group Call	
4	93	None	NorthAmer	Group Call	
5	91	None	WorldWide	Group Call	
6	310	None	TAC 310	Group Call	
7	3100	None	USA 3100	Group Call	
8	31077	None	PAPA Chat	Group Call	
9	31066	None	SoCal	Group Call	
10	31067	None	SoCal1	Group Call	
11	31078	None	PAPA Bridge	Group Call	
12	2	None	Local	Group Call	
13	310014	None	SA Hangout	Group Call	
14	31000	None	BM Parror GC	Group Call	
15	99	None	Direct 99	Group Call	
16					
17					
18					
19					
20					
21					

Final list showing the talk groups to be used in this exercise. This is enough to create all of the PAPA repeater zones. If you are outside SoCal, your list will be different. Contact your local club or local repeater owners for the talk group profiles for repeaters in your local area.

"Private Call" ID's

You add and manage Private Call ID's (Radio ID numbers) the same way you do Group Call (Talk Group) ID's but there is an automated way to do this which we'll cover later. As you see here, there will be lots of these. It is an immense database, with ~160k entries. AnyTone provides an automated methodology for this.

AT D878 CodePlug 101

Part IIIb

Code Plug management Concepts

(Adding Channels)

Adding Channels

- We did Group Calls first since we need these for the digital channel definitions

- We do the channels next since they have to be in place in order to define the Zone and to finalize the Scan lists.

- We will create:

  - The PAPA Woodson zone,

  - A Hot Spot zone, and

  - Analog and Simplex Channels

Scan List Place holders

- Before we create the channels, we need to create a placeholder for their scan lists
- We will create the following two scan lists to be populated later:
  - PAPA Woodson
  - ZumSpot
- At this point you should enter your DMR ID as described in Section II

Create two scan groups

Click on "Scan List"

1. Double Click on the default entry and rename it PAPA Woodson
2. Add a second entry and call it ZumSpot

Make sure that there are a couple channels in there (or it won't save)

Move channels into the "membership list" (and out) using these buttons. It doesn't matter which at this point.

Create two scan groups

Your scan should now look like this, with two "dummy" scan groups as shown. We will reference these when we create channels and populate them later.

Digital Channels

- We now have a dummy scan list for each zone (but haven't populated them yet)
- We will create channels for two Zones
  - PAPA Woodson (448.520 (-) Color Code 1)
  - HotSpot (438.250 (Simplex) Color Code 1)
- We will then proceed to build the Zone lists and populate the Scan lists that we just created.

Building PAPA Woodson

- The TG Setup for PAPA Woodson is shown in the table below:

PAPA DMR Talkgroup / Timeslot Matrix
Click for a complete list of BrandMeister Talkgroups

Time Slot 1		Time Slot 2	
California TG 3106		PAPA Chat TG 31077	
California-1 TG 31061		SoCal TG 31066	
Call Zone 6 TG 31096		SoCal 1 TG 31067	
North America TG 93		PAPA Bridge TG 31078	
Worldwide TG 91		Local TG 2	
TAC 310 TG 310		Static	
USA/3100 TG 3100		Dynamic	
EMCOM TG 9911			
Static			
Dynamic			

Use Slot 1 for conecting to other BrandMeister talkgroups
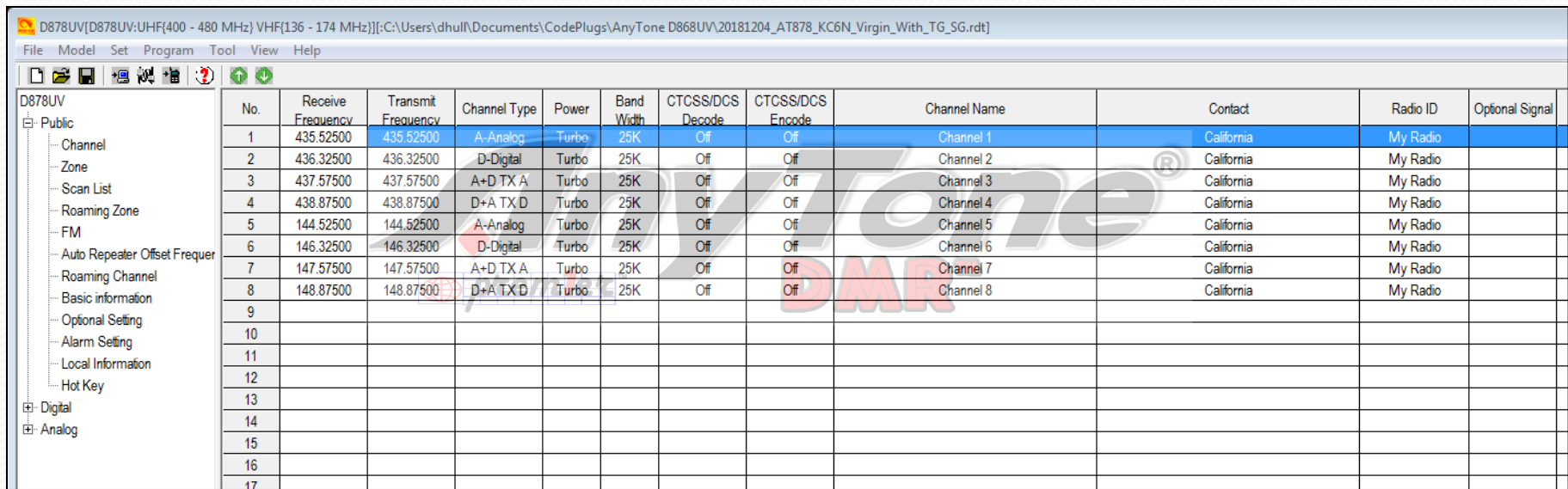
The talk group ID for the SD Hangout TG is 310014

Digital Channel Creation

- We are going to create 14 digital channels for the PAPA Woodson Zone as follows:
  - We will make one master channel which will have the pair Frequencies, Color Code, Scan Group, Power level etc.
  - We will then replicate this "template channel" 13 more times
  - We will then edit each of these channels, to add the Name, Time Slot and TG ID

PAPA Woodson Channels

- ## The blank channel form is shown below

D878UV[D878UV:UHF{400 - 480 MHz} VHF{136 - 174 MHz}][:C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181204_AT878_KC6N_Virgin_With_TG_SG.rdt]

File   Model   Set   Program   Tool   View   Help

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name	Contact	Radio ID	Optional Signal
1	435.52500	435.52500	A-Analog	Turbo	25K	Off	Off	Channel 1	California	My Radio	
2	436.32500	436.32500	D-Digital	Turbo	25K	Off	Off	Channel 2	California	My Radio	
3	437.57500	437.57500	A+D TX A	Turbo	25K	Off	Off	Channel 3	California	My Radio	
4	438.87500	438.87500	D+A TX D	Turbo	25K	Off	Off	Channel 4	California	My Radio	
5	144.52500	144.52500	A-Analog	Turbo	25K	Off	Off	Channel 5	California	My Radio	
6	146.32500	146.32500	D-Digital	Turbo	25K	Off	Off	Channel 6	California	My Radio	
7	147.57500	147.57500	A+D TX A	Turbo	25K	Off	Off	Channel 7	California	My Radio	
8	148.87500	148.87500	D+A TX D	Turbo	25K	Off	Off	Channel 8	California	My Radio	
9											
10											
11											
12											
13											
14											
15											
16											
17											

Tree panel: D878UV — Public (Channel, Zone, Scan List, Roaming Zone, FM, Auto Repeater Offset Frequer, Roaming Channel, Basic information, Optional Setting, Alarm Setting, Local Information, Hot Key), Digital, Analog

My "virgin" radio already had a few channels populated as shown above. These are examples. You can copy and paste from these or create your own. For the purposes of this discussion we will leave these and create 14 new ones of our own, starting at line 10.

Build Woodson Template

1. Select the Channel entry form.
2. Double click row 10 to launch the channel Information dialog.

3. Edit the page as shown:
- Color code = 1
- Scan List=PAPA WUD
- RX = 448.520
- TX = 443.520
- Power Level = High
- TX Admit=Color Code
- Time Out=180 sec
- Parameters should match here
- Click "OK"

Replicate the Template

- Add Placeholders for the 14 channels

1. Right Click on "Row 10"
2. Select "Copy" from the pulldown

3. Right Click on "Row 11"
4. Click "Insert" to insert a copy of the Row 11 information (the Woodson template)
5. Repeat this until you have 14 rows created as shown on the next page. I added an extra one just in case.

Woodson CH Templates

You should have 15 channels which are all the same (except for the auto-assigned names) you will now edit each, providing the proper name, talk group and time-slot to match the PAPA channel profile shown earlier.

PAPA Woodson Channels

Make Woodson Local:
- Set Channel Name = "Local WUD"
- Set Contact = "Local" (click the button then double click the correct TGID from selections)
- Set Repeater/Time slot = "Slot 2"

Do this for all 15 of the channel place-holders that you created So that each channel has a unique name, references the proper talk group and correct TDMA time slot.

Enter remaining channels

D878UV[D878UV:UHF{400 - 480 MHz} VHF{136 - 174 MHz}][:C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181204_AT878_KC6N_Virgin_With_TG_SG.rdt]

File   Model   Set   Program   Tool   View   Help

D878UV
- Public
  - Channel
  - Zone
  - Scan List
  - Roaming Zone
  - FM
  - Auto Repeater Offset Fr
  - Roaming Channel
  - Basic information
  - Optional Setting
  - Alarm Setting
  - Local Information
  - Hot Key
- Digital
  - Radio ID List
  - Talk Groups
  - Prefabricated SMS
  - Receive Group Call List
  - Encryption Code
  - Digital Contact List
    - 1---20000
    - 20001---40000
    - 40001---60000
    - 60001---80000
    - 80001---100000

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name	Contact	Radio ID	Opt
1	435.52500	435.52500	A-Analog	Turbo	25K	Off	Off	Channel 1	California	KC6N	
2	436.32500	436.32500	D-Digital	Turbo	25K	Off	Off	Channel 2	California	KC6N	
3	437.57500	437.57500	A+D TX A	Turbo	25K	Off	Off	Channel 3	California	KC6N	
4	438.87500	438.87500	D+A TX D	Turbo	25K	Off	Off	Channel 4	California	KC6N	
5	144.52500	144.52500	A-Analog	Turbo	25K	Off	Off	Channel 5	California	KC6N	
6	146.32500	146.32500	D-Digital	Turbo	25K	Off	Off	Channel 6	California	KC6N	
7	147.57500	147.57500	A+D TX A	Turbo	25K	Off	Off	Channel 7	California	KC6N	
8	148.87500	148.87500	D+A TX D	Turbo	25K	Off	Off	Channel 8	California	KC6N	
9											
10	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD Local	Local	KC6N	
11	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD SoCal	SoCal	KC6N	
12	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD SoCal 1	SoCal1	KC6N	
13	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	PAPA Bridge	PAPA Bridge	KC6N	
14	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	PAPA Chat	PAPA Chat	KC6N	
15	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD California	California	KC6N	
16	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD CAL 1	CA1	KC6N	
17	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD Zone 6	Zone 6	KC6N	
18	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD USA	USA 3100	KC6N	
19	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD NoAmer	NorthAmer	KC6N	
20	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD WorldWide	WorldWide	KC6N	
21	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD TAC 310	TAC 310	KC6N	
22	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD Parrot GC	BM Parror GC	KC6N	
23	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD SD Hangout	SA Hangout	KC6N	
24											
25											

Your final channel list should look like this. Double check all the channels. Name, TS, TG should be correct. This would be a really good time to *Save your file*

Analog Repeater

Add Analog Repeater (PAPA 11 Otay) Double Click Position 25 And fill out the pop-up as shown.

Analog Simplex Channel

Create the Analog Simplex CH (449.52 MHz) Double Click Position 26, fill out the pop-up as shown.

Digital Simplex Channel

Create a DMR Simplex Channel (441.125 MHz): Double Click Pos 27, fill out the pop-up as shown.

AT D878 CodePlug 101

Part IIIc

Code Plug management Concepts

(Populate the zone and scan lists)

Create Woodson Zone

2. Rename Zone 1 to PAPA Woodson

3. Highlight and remove the existing channels from the current member list using the "remove" (<<) button.

4. Select each WUD channel and "Add" it to the Woodson Zone using the "Add" (>>) button.

1. Click "Zone" and then Double Click "Zone1".

Final Woodson Zone

PAPA Woodson Zone

Channel A and B will appear in the main display when the zone is selected

Zone editing tools

Zone Editor showing the final contents of the PAPA Woodson Zone

Create Woodson Scan List

2. Highlight and remove the existing channels from the current member list using the "remove" (<<) button.

3. Select the desired WUD channels and "Add" it to the Woodson Zone using the "Add" (>>) button.

1. Click "Scan List", click "PAPA Woodson" to open the Scan List dialogue

Final Woodson Scan List

1. Scan List name: "PAPA Woodson"

2. Scan Group members here. Note that the order is not important for scan.

Note that there are not too many channels to be scanned – this is on purpose to make it fast.

In the AT UV-878, most of the time you will use the monitor functions rather than scan (IMO).

AT D878 CodePlug 101

Part IIId

Code Plug management Concepts

(Overview: Adding a hotspot zone)

Creating a HotSpot Zone

- The steps to create a HotSpot zone are the same as for any other zone except:
  - The TX and RX Frequencies are the same.
  - The CC is 1 and the Time slot is "2"
  - You don't program "Local"
  - You may not want to program "PAPA"
  - You can scan your hot spot zone and have analogs if you like.
- We'll just show the completed screens

HotSpot CH Template

1. Create a digital channel
2. Set Scan List to "ZumSpot"
3. Power=Low
4. RX and TX Freq to your choice (I chose 438.250)
5. Admit=CC Free
6. Un-check "Talkaround"
7. Set CC=1
8. Set TS=1 or 2*
9. Replicate this as before.

* Note: Check which is best for your brand of HotSpot

HotSpot SoCal Channel

1. Edit Name: "HS SoCal"
2. Edit TX Contact to: "SNARS"
3. Repeat for all 12 channels with correct name and TG ID

HotSpot Zone List

Zone Name: "ZumSpot" appears here

Create and populate a zone for your ZumSpot the same way we did for the woodson zone.

Select the channels to include from the panel on the left and use ">>" to move them over to the member panel on the left. Use the up/down buttons to adjust the order.

Populated Zone List

HotSpot Scan List

Scan List Name: "ZumSpot" appears here (Remember, we created it previously).

Populate the scan list as previously shown. Order isn't important. I usually scan static TG's only (and not very many at that).

Scanning is something that these radios don't really do that well and the monitor function is a very effective alternative.

AT D868 CodePlug 101

Part IIIe

Code Plug management Concepts

(Contact List Maintinence)

Contact List Operations (1)

- We will populate the Private Call "Contact List" as follows:
  - Go to: http://amateurradio.digital/#wizard
  - Follow the instructions on the site (next page) to generate .csv file You may need to open an account.
  - Import the .csv file into your radio using the tools provided in the CPS.

Contact List Operations (2)

Go to: http://amateurradio.digital/#wizard

Option 1: Use the "Digital Contacts Wizzard", Choose your radio and follow the step-by-step instructions.

Option 2: Select ready made file if it is provided here.

Alternate database source

Go to: https://kf5iw.com/contactdb.php

https://kf5iw.com/contactdb.php | AT-D868UV, AT-D878UV Di... ×

File   Edit   View   Favorites   Tools   Help

Google   My D...   WebM...   Face...   Call...   cano...   PAPA...   Davi...   Davi...   foru...   Elec...   San ...   DMR-...   Amat...   X Re...   KC6N...   KC6N...   KC6N...   D-ST...   Link...   DPLU...   Rele...   GitH...   DMRp...   IPSC...

KF5IW DMR   Navigation ▾   Connecting Sout

This is an alternative source for the Private Call Contacts file.

Anytone AT-D868UV, AT-D878UV compatible digital contact list

Every morning we automatically generate a new worldwide digital contact list compatible with the Anytone AT-D868UV and AT-D878UV handheld transceivers. Click on a link below to download a zip file that contains a CSV file ready for import to your radio. Please note that the newest available contact list is at the top.

File	# DMR IDs	# Unique Callsigns	# Countries
20190214060901	122872	104963	162
20190213060901	122781	104895	162
20190212060901	122676	104805	162
20190211060901	122578	104727	162
20190210060901	122455	104615	162

contacts_20190214060901.zip ← **Newest**
contacts_20190213060901.zip
contacts_20190212060901.zip
contacts_20190211060901.zip
contacts_20190210060901.zip

Select the newest file here, download and unzip.

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Contact List Operations (3)

From the "Tools" drop-down, select "Import" to bring up the "Import" dialog.

Contact List Operations (4)

Click "Digital Contact List" and navigate to the newly created CSV file. It should have a name something like: "contacts_20190219060901.csv"
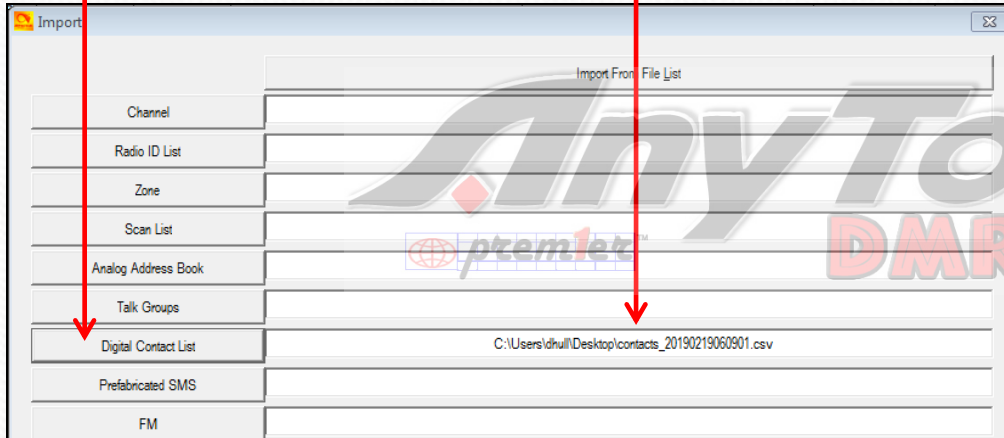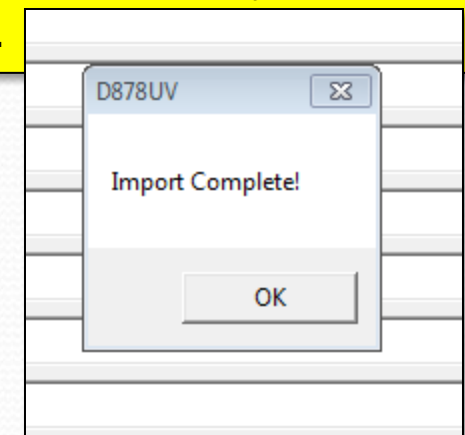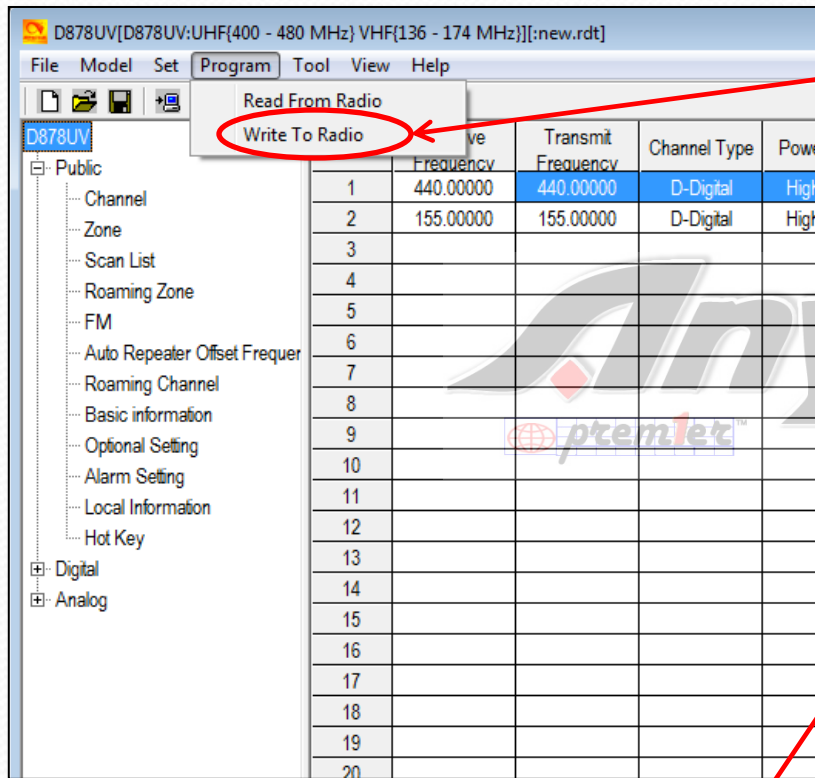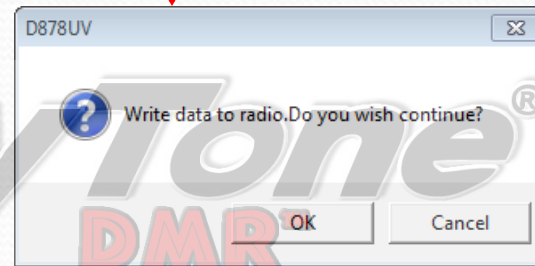
Click the "Import" button at the bottom of the dialog box. And wait for the "Import Complete" pop-up. At which point you are done. You can check the contacts section in the cps to make sure that they are there, if you like. Save your code plug.

	Import From File List
Channel	
Radio ID List	
Zone	
Scan List	
Analog Address Book	
Talk Groups	
Digital Contact List	C:\Users\dhull\Desktop\contacts_20190219060901.csv
Prefabricated SMS	
FM	

DTMF Encode	
HotKey_QuickCall	
HotKey_State	
HotKey_HotKey	
Auto Repeater Offset Frequencys	
Roaming Channel	
Roaming Zone	

Import   Close
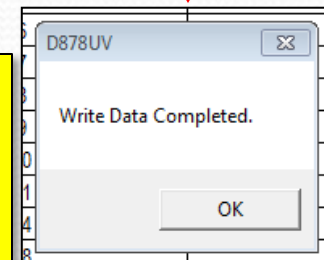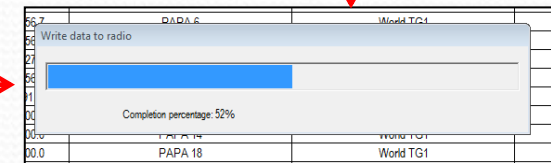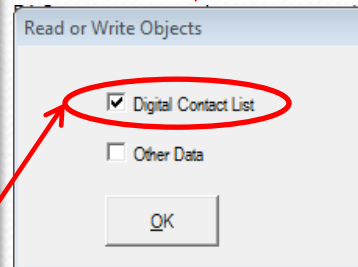
D878UV

Import Complete!

OK

Contact List Operations (5)

In CPS, Click "Write To Radio" and follow the dialogs

The progress bar will take several minutes for a large contact list

Make sure "Digital Contact List" is checked. This tells the CPS to copy the Digital contacts (which takes a while). Other Data is the code plug info. You can do either or both. In cases where you only care about the code plug, just check "Other Data". Things will go a lot faster.

AT D868 CodePlug 101

Part IV

Code Plug management Concepts

(Setting up Roaming)

Setting up Roaming

- Roaming allows your radio to find a usable repeater as you travel

- To set up Roaming on the AT-UV878:

  - Decide what you want to roam and set up "Roaming Channels"

  - Set up "Roaming Zones"

  - Go to "Options Settings" and select the "Auto Repeater" tab to configure roaming.

Set up Roaming Channels

Set up your roaming channels as shown on the left. You will enter the Frequencies, Color Code and Time Slot for a block of repeaters that you want to roam over. Here I have set up the entire PAPA DMR network. Two channels for each repeater one for each time slot.

Double click an entry row to bring up the entry dialog shown. Right click any entry row for the copy, paste, insert, delete drop-down.

Set up Roaming Zone(s)

Set up your roaming zones as shown. Double click on a row to launch the entry edit dialog.

Highlight desired roaming channels from the list of desired channels on the left and move them into the right hand channel membership list using the ">>" key. If you make a mistake use the "<<" key

Configure Roaming (1)
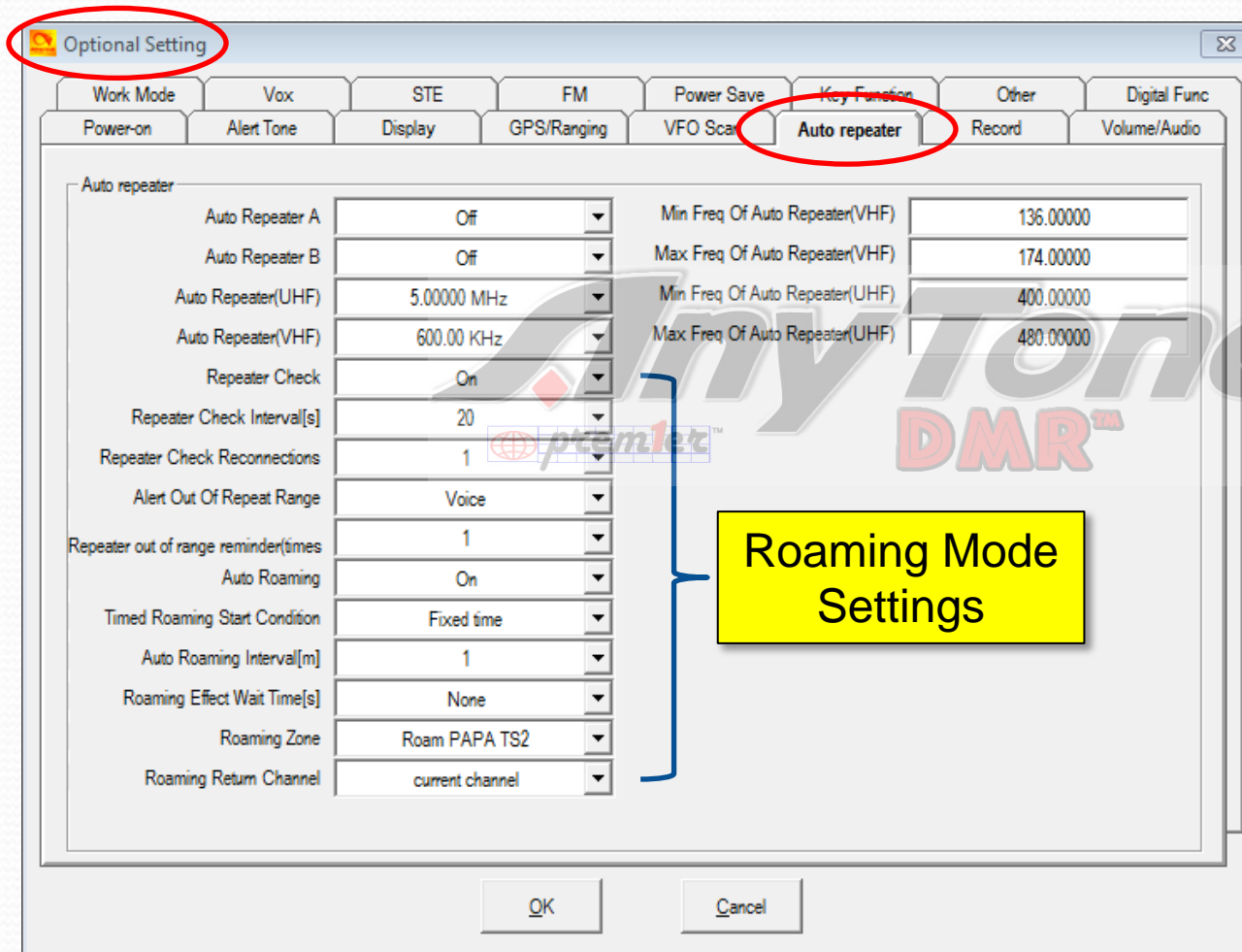
The roaming mode settings are found in "Optional Settings" on the "Auto Repeater" tab.

This page shows my recommended settings. You can control most of these from the radio keypad and adjust them to your taste.

Configure Roaming (2)

Optional Setting

Work Mode	Vox	STE	FM	Power Save	
Power-on	Alert Tone	Display	GPS/Ranging	VFO Scan	Au

Auto repeater

Auto Repeater A	Off	Min Freq Of Auto Rep	
Auto Repeater B	Off	Max Freq Of Auto Re	
Auto Repeater(UHF)	5.00000 MHz	Min Freq Of Auto Rep	
Auto Repeater(VHF)	600.00 KHz	Max Freq Of Auto Re	
Repeater Check	On		
Repeater Check Interval[s]	20		
Repeater Check Reconnections	1		
Alert Out Of Repeat Range	Voice		
Repeater out of range reminder(times	1		
Auto Roaming	On		
Timed Roaming Start Condition	Fixed time		
Auto Roaming Interval[m]	1		
Roaming Effect Wait Time[s]	None		
Roaming Zone	Roam PAPA TS2		
Roaming Return Channel	current channel		

OK   Cancel

Enables Repeater Check (must be on), determines how often to check and the number of times to check before moving on.

Should the radio alert you when scan starts and how long should the alert be.

Do you want roaming to be continuous or do you want to kick it off manually? Kick off automatically or on loss of connection?. If automatic, how often? Should it wait to start?

Zone to start in (can be changed from keypad) and Channel to return to.

How Roaming Works

- The radio periodically (based on the "Repeater Check Interval") "pings" the chosen repeater, assuming "Repeater Check" is "ON"

- If the "ping" fails, or if the "auto Roaming Interval" expires (depending on the roaming start condition setting), the radio will step through "Roam Zone" channels, pinging each one until it gets a response.

AT D868 CodePlug 101

Part V

Code Plug management Concepts

(Setting up Digital APRS)

Enable GPS and APRS

1. From the "Tool" pull-down, Click "Options"
2. In the resulting pop-up, make sure that the GPS and APRS boxes are ticked as shown below.
3. Click "OK". This will add the APRS option to the option tree

Enable Motorola SMS
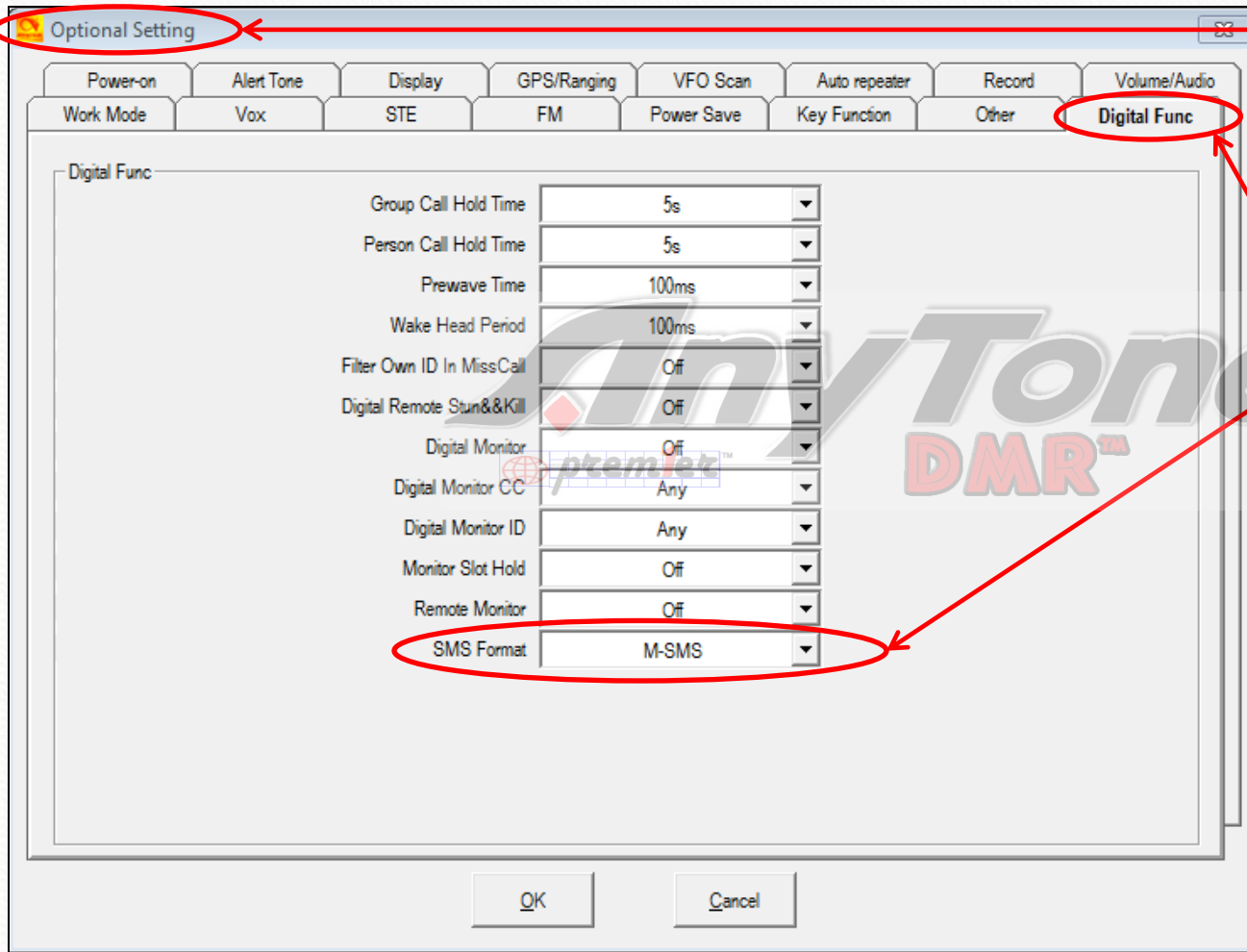
1. Select "Optional Settings" from the tree on the left hand menu tree.
2. Select the "Digital Func" tab.
3. At the bottom of this tab, make sure that SMS Format is set to M-SMS

Turn on the GPS

1. While in "Optional Settings",
2. Select the "GPS Ranging" tab and,
3. Set GPS to "ON"

Set up APRS
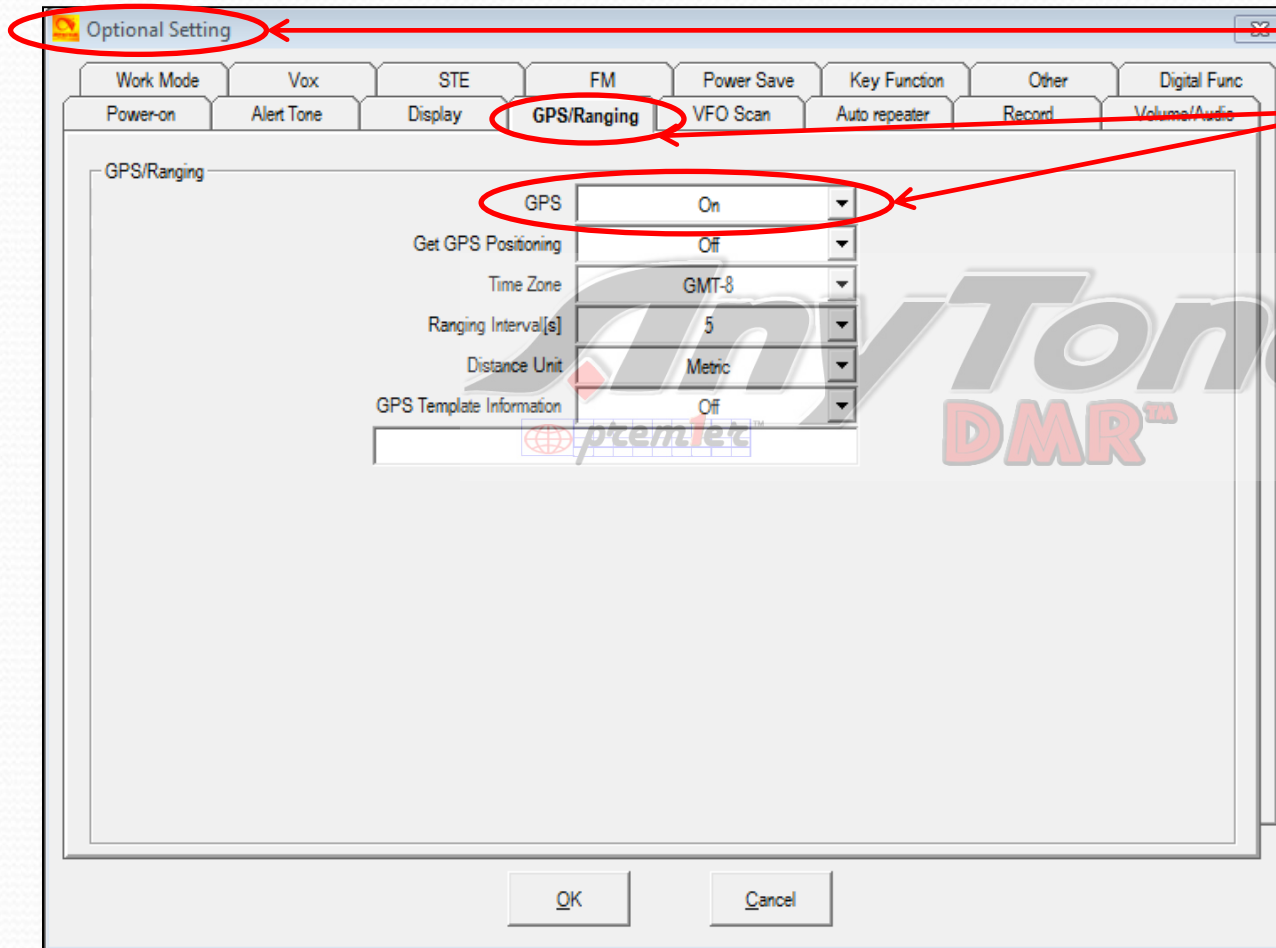

1. Open the APRS configuration dialog shown here from the left hand menu tree.
2. Set "Manual TX Interval" = 30 s, Turn "APRS Auto TX Intervals" to OFF so it doesn't beacon.
3. Configure at least one channel in the "Digital" section at the top right. You may configure up to 8 of them.
4. Set APRS TG to 310999
5. Set Call Type to "Private Call"

Configure Report Channel

Channel Information Edit---1066

Channel Name: ZS3 CA3106

Receive Frequency: 439.07500
Transmit Frequency: 439.07500
Correct Frequency[Hz]: 0

☐ TX Prohibit   ☐ Talk Around   ☐ Through Mode
☐ Work Alone   ☐ Digi APRS RX

Channel Type: D-Digital
Transmit Power: High
Band Width: 12.5K
TX Permit: Always
Scan List: None
APRS Report Type: Digital
Analog APRS PTT Mode: Off
Digital APRS PTT Mode: On
Digital APRS Report Channel: 1
Exclude channel from roaming: off

Digital
Contact: CA 3106
Radio ID: KC6N
Color Code: 1
Slot: Slot2
Receive Group List: None
Digital Encryption: Off
Encryption Type: Normal Encryption

☐ Simplex TDMA   ☐ Call Confirmation   ☐ Ranging
☐ TDMA Adaptive ☑ SMS Confirmation

Analog
CTCSS/DCS Decode: Off
CTCSS/DCS Encode: Off
Squelch Mode: Carrier
Optional Signal: Off
DTMF ID:
2Tone ID: 1
5Tone ID: 1
PTT ID: Off

☐ Reverse

2TONE Decode: 1
Custom CTCSS: 0.0

OK   Cancel   Previous   Next

1. Go to the channel you set for reporting channel 1. In this case it was "ZS3 CA3106"
2. Set the APRS Report Type = "Digital"
3. Set Digital APRS PTT Mode = "ON"
4. Set the Digital APRS Report Channel = 1 to reference the setting in the APRS set-up panel.
5. Do this for each channel you set up in the APRS setup.

Verify Operation

1. Verify that your GPS is locked (Icon should be Red). If it is blue you will need to wait for it to find GPS lock. You may need to go outside and walk around or wait a bit.
2. Set your radio to one of the channels set up for APRS.
3. Key your radio and look for the "Sending Digital APRS data…" Response.
4. Check your position at https://aprs.fi
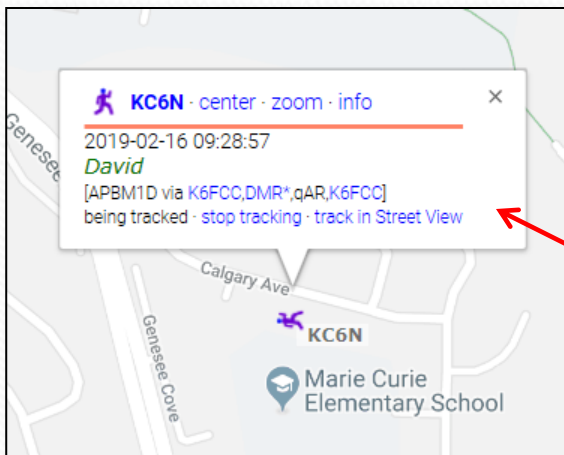
AT D868 CodePlug 101

Part VI

Code Plug management Concepts

(Bells and Whistles)

Programmable Buttons

Optional Setting

Tabs: Power-on | Alert Tone | Display | GPS/Ranging | VFO Scan | Auto repeater | Record | Volume/Audio
Work Mode | Vox | STE | FM | Power Save | **Key Function** | Other | Digital Func

Key Function

Key Lock	Manual
PF1 Short Key	Digital Monitor
PF2 Short Key	Repeater
PF3 Short Key	Power
P1 Short Key	Main Channel Switch
P2 Short Key	V/M
PF1 Long Key	Scan
PF2 Long Key	Nuisance Delete
PF3 Long Key	FM
P1 Long Key	Off
P2 Long Key	Off
Long Key Time[s]	1
Knob Lock	Off
Keyboard Lock	Off
Side Key Lock	Off
Forced Lock Key	Off

OK   Cancel

Programmable Buttons

Key Function

Click pull-down to expose options

Select the "Key Function" tab to set the function of the various buttons on the radio.

This is my setup, but you can do whatever makes sense to you.

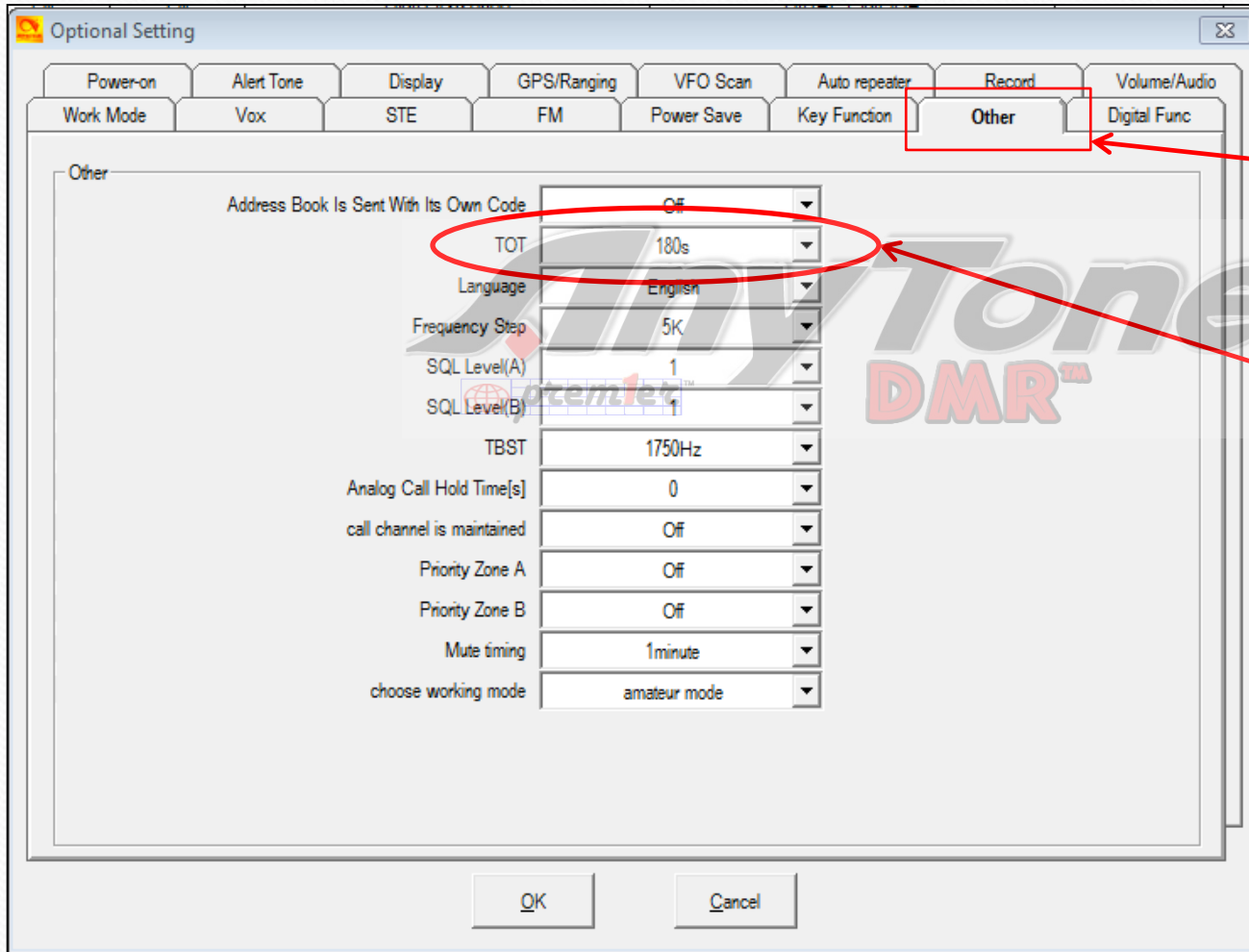Consult the manual for specific button locations.

Alert Tones

This page allows one to program a different set of alert tones which affect the sounds that the radio makes as it is used.

The setup here makes the AT UV-878 sound like a Motorola XPR7550 (which is nice since it still doesn't "cost" like one).
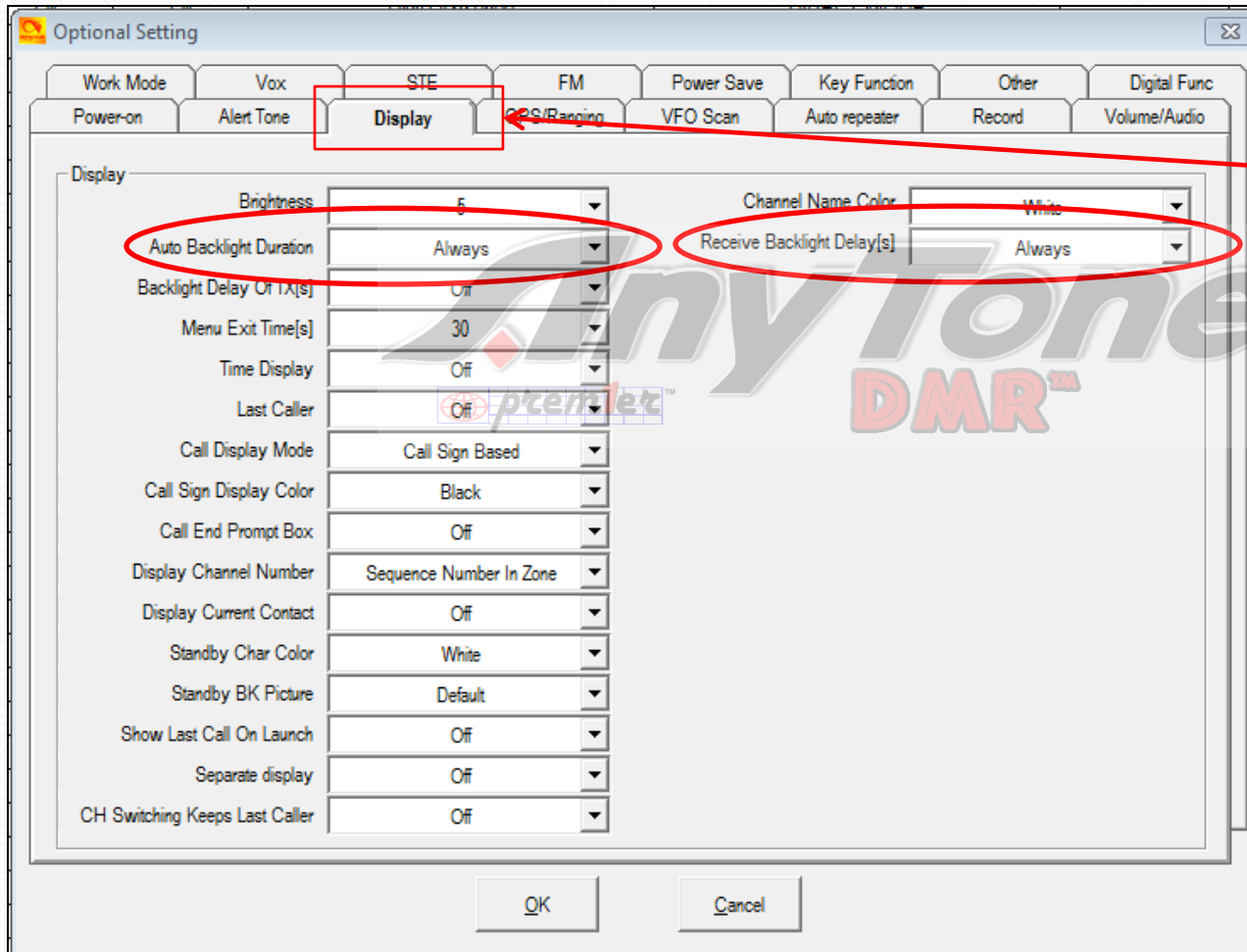
Thanks to Brian, KC2GNV for working this out.

"Blab-Off" Timer

The "Other" tab provides a number of radio functions that you may want to adjust to suit your taste. One of which is the Time Out timer which will cut you off after a predetermined talk time.

Display Options

The "Display" tab provides a number of options allowing you to customize how the radio display operates. I have the backlight delays set to always. There are a lot of things you can twiddle here to customize your display.
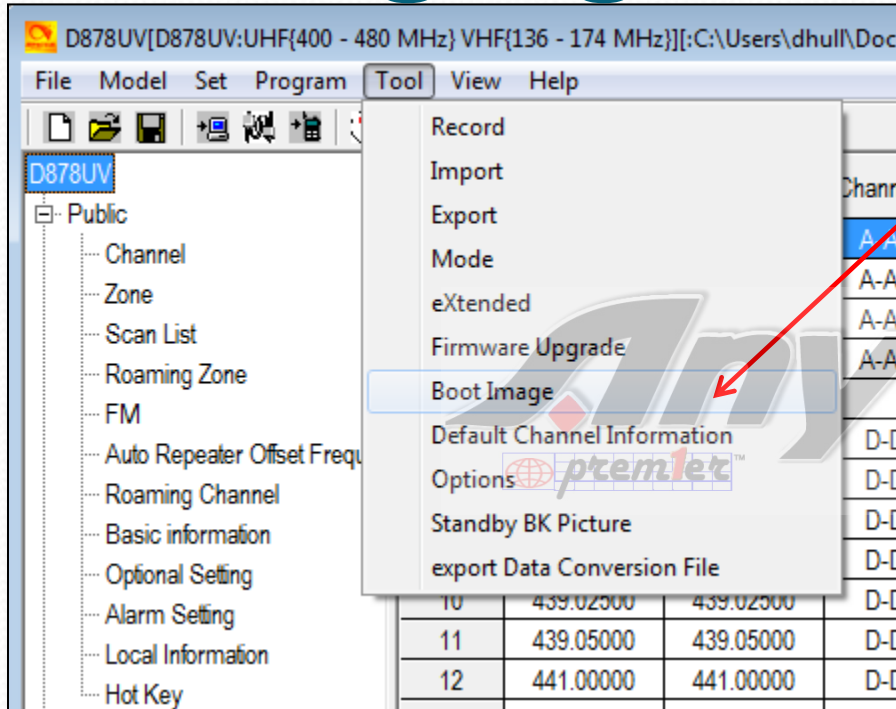
Power Save
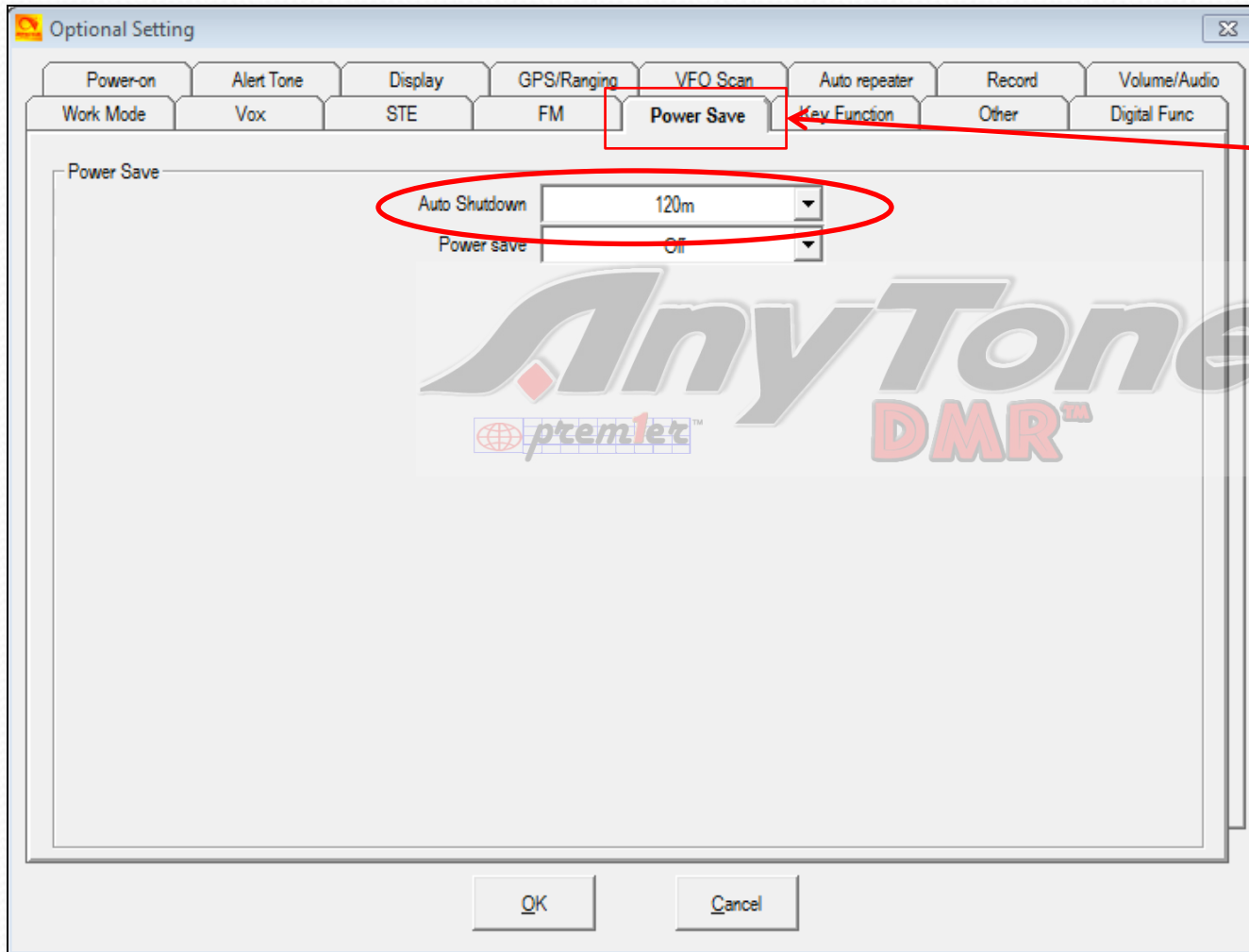
The "Power Save" tab provides an option set your to turn itself off automatically after a predetermined period of inactivity. This is a handy feature not generally provided on "commercial" radios.

You can see that I have this one set to shut off after two hours of inactivity.

Changing Screen Image (1)

1. Select "Tool"
2. Click "Boot Image"
3. The "pop-up" below will appear
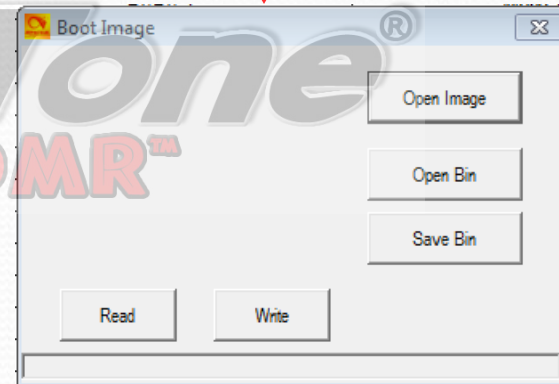
Select "Open Image" to bring up a file browser window. Point this to a JPEG file of an image you want to use as your boot image. Click "Write" to write this image to the radio. You can also use a binary file, in which case you would click "Open Bin" then select "Write" to write this image to the radio. This image will come up whenever you turn your radio on. You can save a standby image as well.

Changing Screen Image (2)

Here is an example of a .bin image available on the PAPA web site.

Here is an example of a .jpg image shot with a Canon 5DIV and worked in Lightroom. If you take this route, crop it to 8x10 landscape to fit the 128x160 pxl screen. There are no limitations as to color.
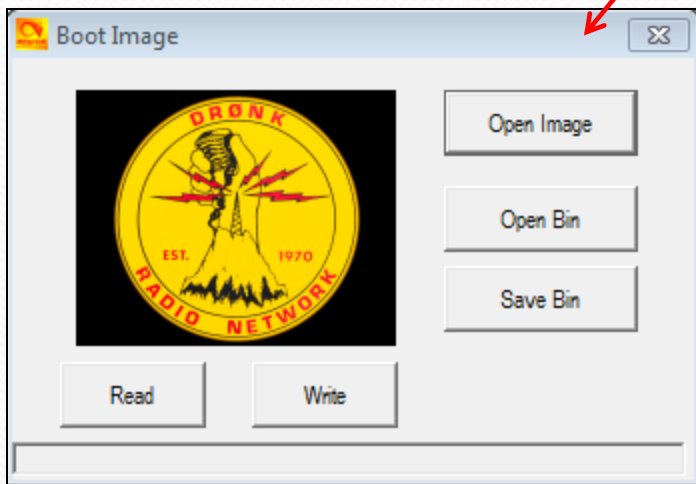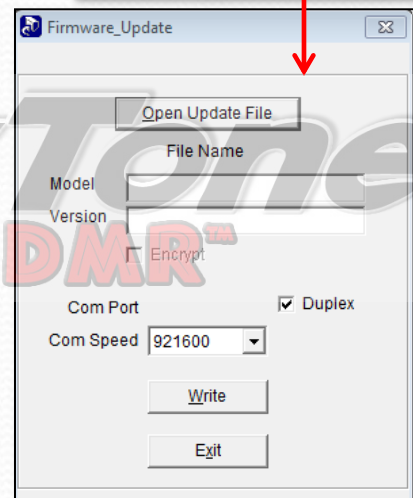
There is one more step, after this which is that you will need to go into "Optional Setting" and on the "Power-on" tab, in the "Power-on Interface" pull down, select "Custom Picture"
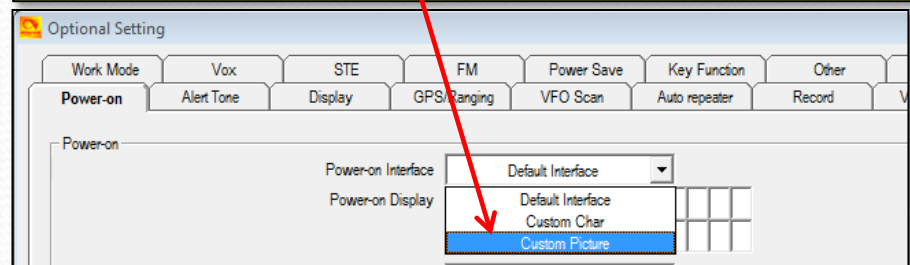
Upgrading Firmware
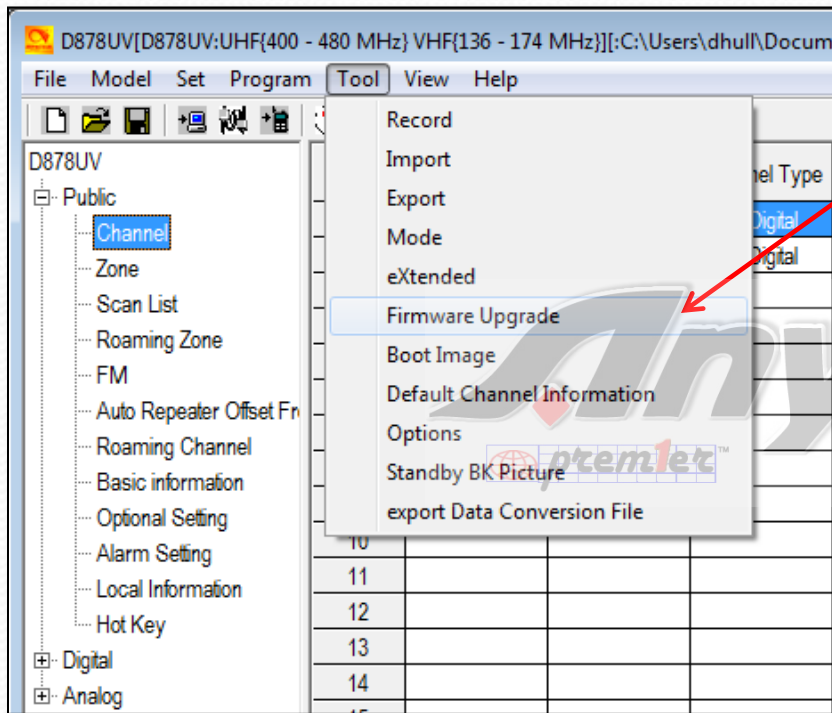
1. Select "Tool"
2. Click "Firmware Upgrade"
3. The "pop-up" below will appear

Note: The radio must be in FW Flash mode for this to work. Hold down the top button and PTT while turning the radio on.

Select "Open Update File" to bring up a file browser window. Point this to the desired FW upgrade file. Something like D878UV_V1.10_2018-12-21.spi. Select the file and click "Open". The file name, Model and Version will appear in the pop-up window. Make sure these are correct, then click "Write". Once the write process completes, your radio will re-boot. Verify the new FW version in the radio menu.

That's it !

Thanks and back to Net Control.

Dave Hull, KC6N
dhull1@san.rr.com

Revision Sheet

- **02/19/19:** Corrected p70 to show contact list csv file import coming from "Digital Contact List" instead of "Radio ID List" as shown in the graphic for the in the original 02/16/19 version.