

DMR CodePlug 101

AnyTone AT-D878UV

Code Plug Basics for the AnyTone 868/878

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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 its 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)

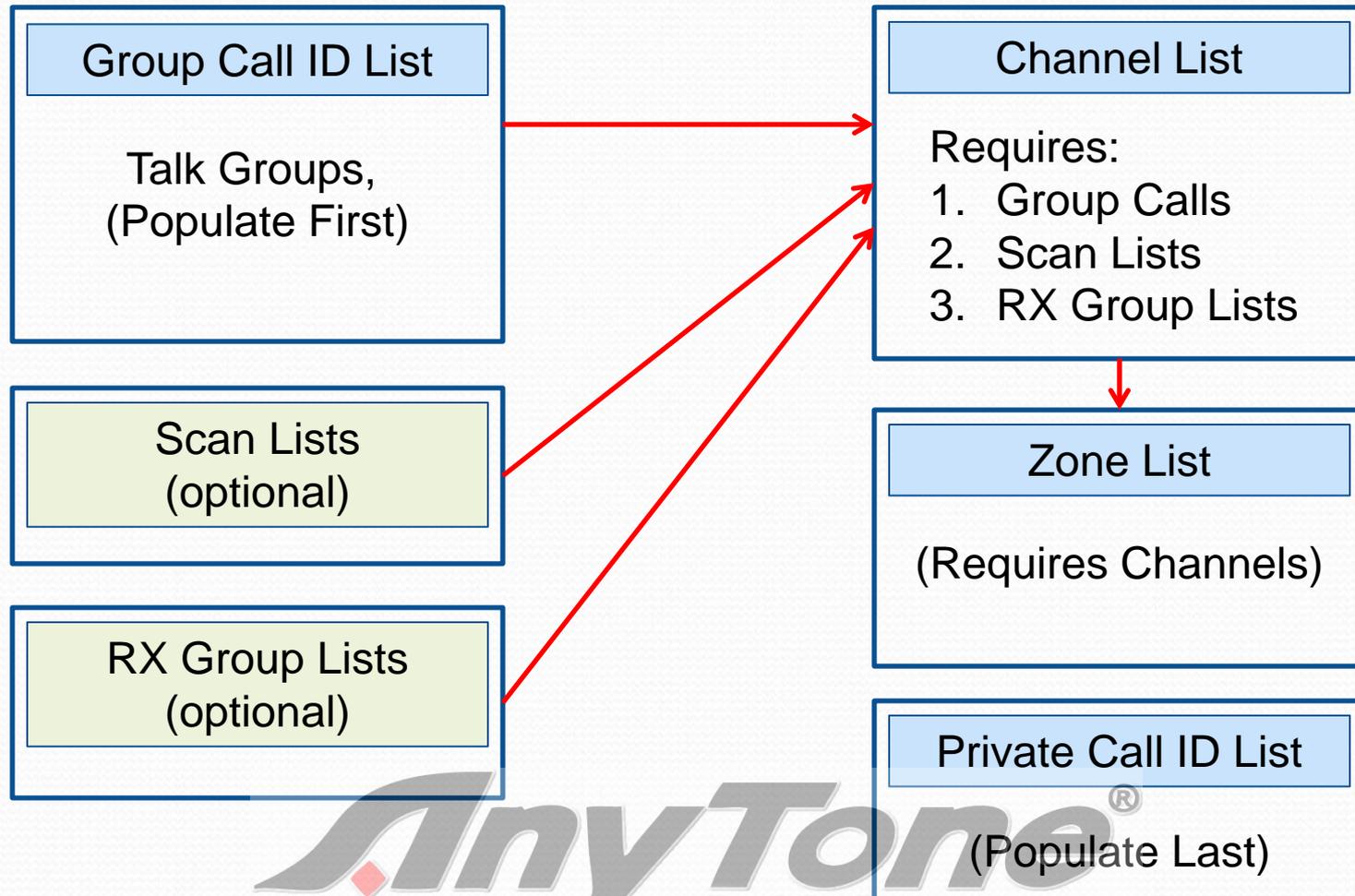
- Zones: Folders containing channels
 - Collects together a group of channels
 - Often dedicated to a physical repeater
 - Sometimes dedicated to a specific location
 - May contain DMR and Analog channels
- Channels: specific talk setup within a zone
 - Digital: Frequency, Color Code, Talk Group
 - Analog: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

Basic Concepts (3)

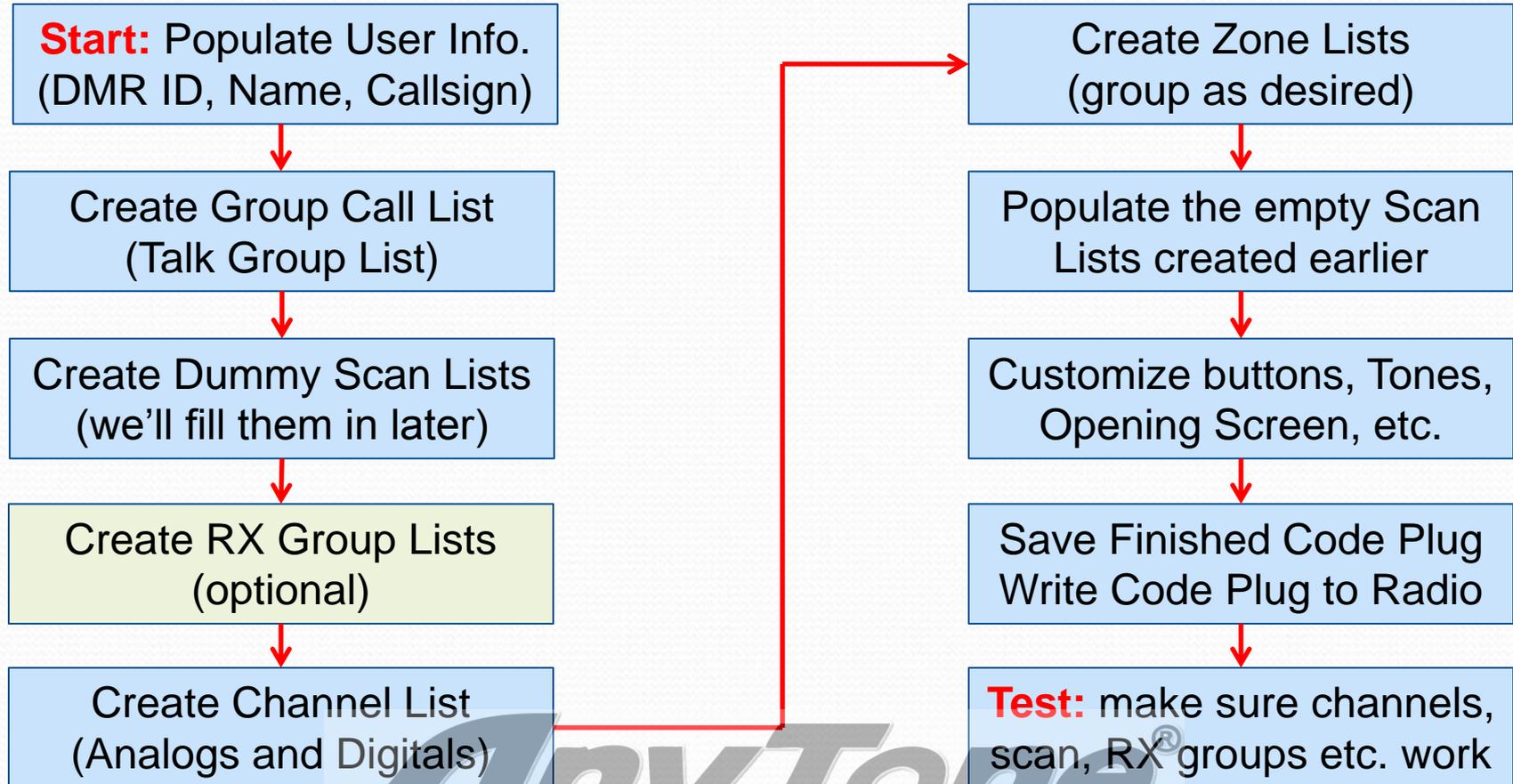
- Scan Groups: Defines channels to scan
 - Each channel references a specific SG
 - There may be a max number of channels
 - Scan is usually focused on a specific Zone
- Contacts: DMR offers several types but only two are used in amateur radio:
 - Private Call: User ID / Call Sign
 - Group Call: Talk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



Database relationships



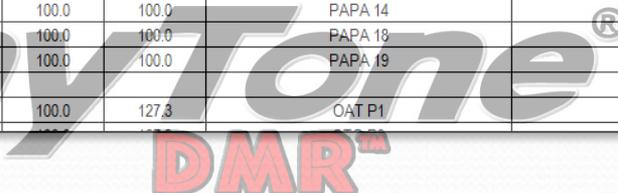
DMR Code Plug Workflow



AnyTone CPS opening Screen

The screenshot displays the AnyTone CPS opening screen. On the left is a 'Folder Tree' with a red arrow pointing to the 'Digital' and 'Analog' options. The main area is a 'Channel list panel' containing a table of channels. A yellow callout box highlights the table with the text: 'Channel list panel You will create and configure your channels here'. The table has columns for No., Receive Frequency, Transmit Frequency, Channel Type, Power, Band Width, CTCSS/DCS Decode, CTCSS/DCS Encode, Channel Name, Contact, Radio ID, and Optional Signal.

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								KC6N	
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):

The screenshot shows the AnyTone DMR software interface. On the left, a menu tree is visible with 'Talk Groups' highlighted. A red box highlights the 'Talk Groups' entry in the menu. A red arrow points from this box to a yellow callout box that says 'Click "Talk Groups"'. The main window displays a table of group call entries. A red box highlights the first three rows of the table, and a red arrow points from this box to a yellow callout box that says 'Example: Group Call North America, Call ID (TG)=3'.

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	Talk Group 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	15	Group Call
22	3176	None	SOUTHWEST	Group Call
23	3177	None	MOUNTAIN	Group Call
24	3181	None	DCI LOCAL1	Group Call

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 unprogrammed 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:

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	OakMt	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

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).

Scan Edit---

Scan List Name: Woodson

Available Channel	Scan Channel Member
1 146.520 Analog	179 WUD Local
2 446.0000 Analog	180 WUD PAPA
3 446.5000 Analog	182 WUD SoCal
4 441.0000 Analog	184 WUD CA 3106
6 DMR 433.4500	197 WUD Hangout
7 DMR 438.9500	78 WUD DRINK Otay
8 DMR 438.9750	81 WUD K&X 449.440
9 DMR 439.0000	83 WUD P10 Pal
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	

Order By: ID, Name

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

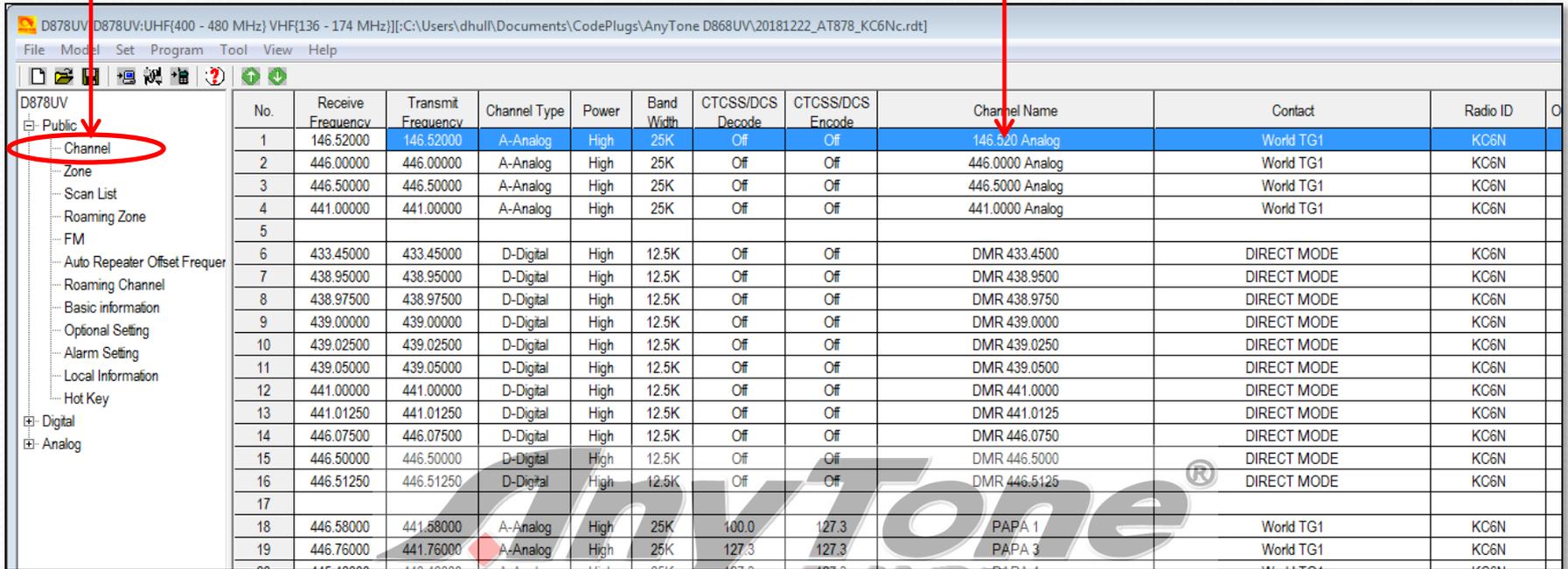


Channels:

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



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	
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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	
20											

Analog Channel detail:

RX Frequency

TX Frequency

Channel Type

TX Power Level

Channel BW

Admit Criteria

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

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

Options:
 TX Prohibit
 Work Alone
 Talk Around
 Through Mode
 Simplex TDMA
 TDMA Adaptive
 Call Confirmation
 Ranging
 SMS Confirmation

Analog (highlighted):
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

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

Channel Name

TX Prohibit, Talk-around, etc.

Area pertaining to digital channels is grayed out

CTCSS (PL) setup Info.

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.

Channel Name: WUD Local

Receive Frequency: 445.96000
Transmit Frequency: 440.96000
Correct Frequency(Hz): 0

Channel Type: D-Digital
Transmit Power: High
Band Width: 12.5K
TX Permit: Different Color Code
Scan List: Woodson

Exclude channel from roaming: off

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

2TONE Decode: 1
Custom CTCSS: 0.0

Buttons: OK, Cancel, Previous, Next

Channel Name

Talk Around

TX Contact (Talk Group)

DMR ID or User

Repeater Color Code

Channel Timeslot

Scan List

RX Group List

Digital Channel Info



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

No.	Name	Zone Channels	A Channel	B Channel
1	Simplex	15	146.520 Analog	446.0000 Analog
2	Analog VHF	12	DRONK 147.990	SANDRA 146.640
3	Analog UHF	20	DRONK Olay	
4	PAPA Analog	13	PAPA 10	
5	ZumSpot 1	21	ZS1 SoCal	
6	ZumSpot 2	21	ZS2 SoCal	
7	ZumSpot 3	21	ZS3 SoCal	
8	PAPA Blue Ridge	19	BLU Hangout	
9	PAPA Lukins	18	LUK Hangout	
10	PAPA Oat Mt	19	OAT Hangout	
11	PAPA Olay	19	OTY Hangout	
12	PAPA PalmSprings	19	PSP Hangout	
13	PAPA Palomar	19	PAL Hangout	
14	PAPA Palomar MM	18	PAM Hangout	
15	PAPA Portable	17	PRT Hangout	
16	PAPA Saddle Pk	19	SDL Hangout	
17	PAPA San Marcos	19	SMP Hangout	
18	PAPA SantaBarbara	20	SYZ Hangout	
19	PAPA Santiago	19	STG Hangout	
20	PAPA Sunset	18	SUN Hangout	
21	PAPA Toro Peak	19	TOR Hangout	
22	PAPA Vista Pk	17	VST Hangout	
23	PAPA Woodson	31	WUD Hangout	

Zone Name: PAPA PalmSprings

A Channel: PSP Hangout

B Channel: PSP CA 3106

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

Zone Channel Member

231	PSP Local
232	PSP PAPA
235	PSP PAPA Bridge
233	PSP SoCal
234	PSP SoCal1
235	PSP CA 3106
236	PSP CAL 1
237	PSP Zone6
238	PSP USA3100
239	PSP NA
240	PSP World
249	PSP Hangout
241	PSP SNARS
243	PSP TX 3148
250	PSP TAC 310
251	PSP TAC 311
252	PSP TAC 312
253	PSP Parrot
41	PSP P18

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	VA3BQC	Ontario	Canada	DMR
11	1023008	None	Mark Robinson	Niagara Falls	Private Call	VE3JMR	Ontario	Canada	DMR
12	1023009	None	Rolando Pardo	Scarborough	Private Call	VA3RWO	Ontario	Canada	DMR
13	1023010	None	Rolando Pardo	Scarborough	Private Call	VA3AMO	Ontario	Canada	DMR
14	1023013	None	Barry Brousseau	Guelph	Private Call	VE3SLD	Ontario	Canada	DMR
15	1023014	None	Danè Bruce	Nepean	Private Call	VE3DB	Ontario	Canada	DMR
16	1023015	None	Friedrich Vogler	Ajax	Private Call	VE3PVD	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	Jacqueline Normie	Nesleton Sta	Private Call	VA3BTQ	Ontario	Canada	DMR

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.

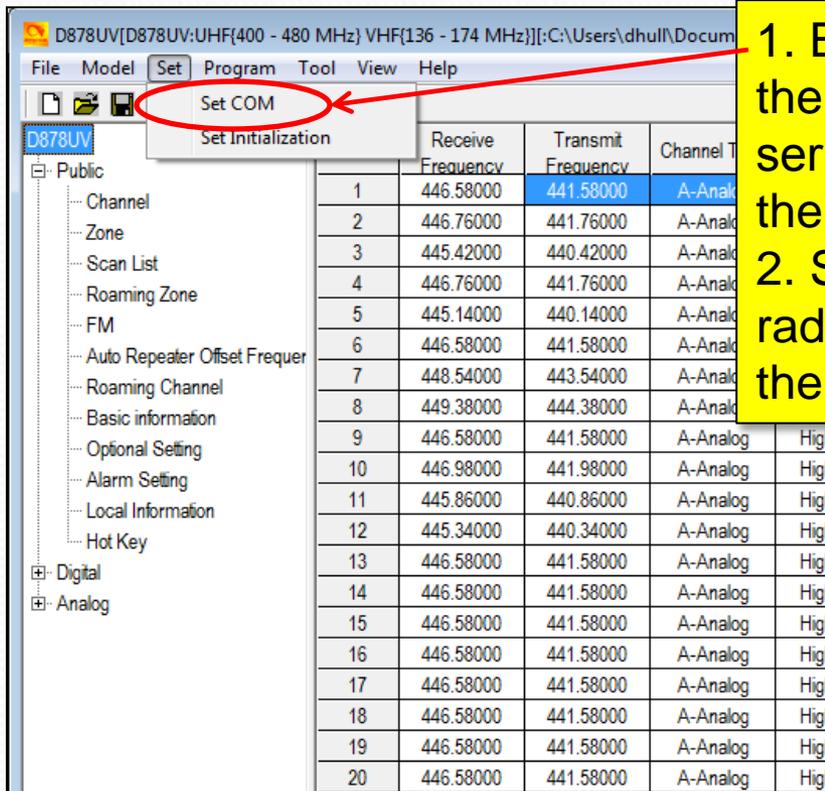


New radio – first steps (2)

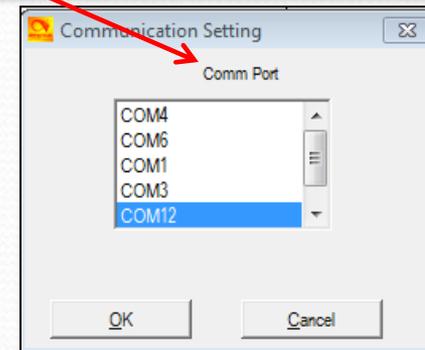
- Launch the CPS
- Set your serial port.
- Read the radio and save the Virgin Code Plug.
- Load the new code plug
- Set your DMR ID
- Test the radio



Set your Comm Port:

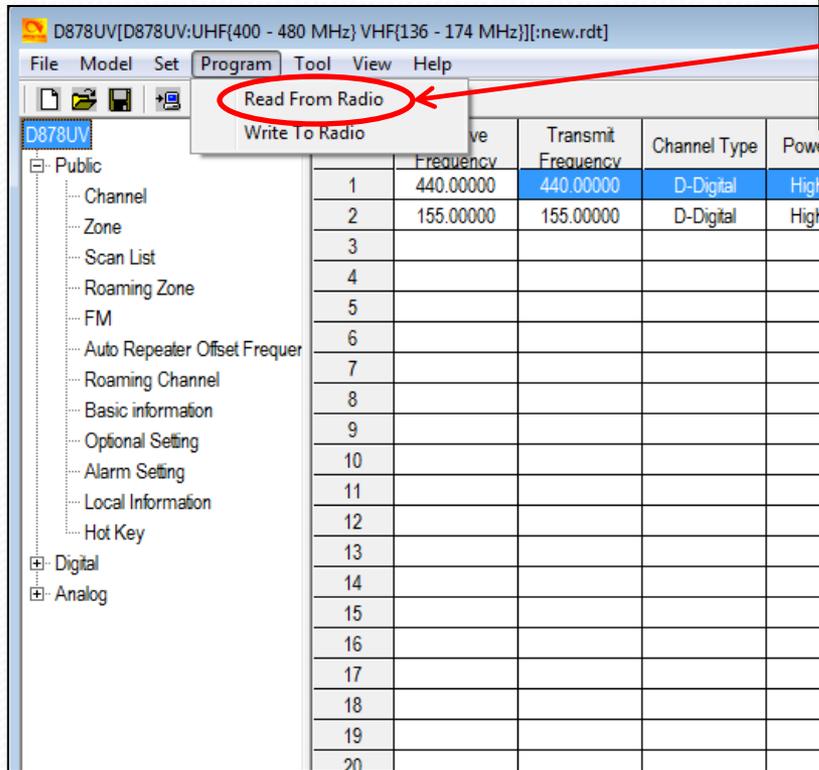


1. Before you can do anything with the UV-878 you have to set up the serial port. Click "Set COM" under the Set Pull-down.
2. Select the comm port for your radio from the options provided in the pop-up.

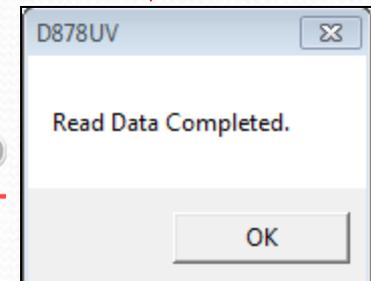
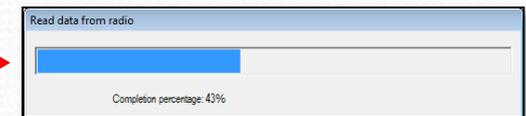
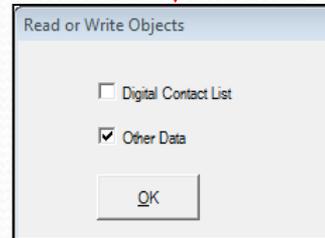
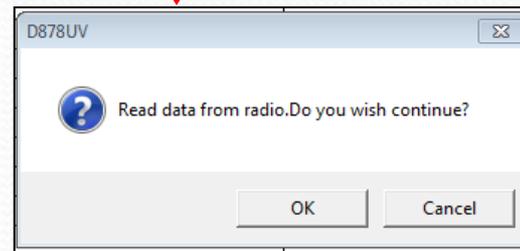


NOTE: Mine is usually COM12 but this will depend on your computer. You may want to try this with your radio off and note the com ports present. Then turn the radio on and do it again. The correct port should be the new one that showed up. You will need to have installed the driver.

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

No.	Radio ID	Name
1	3106564	KC6N
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

Add Your DMR ID and Call Sign to the list.

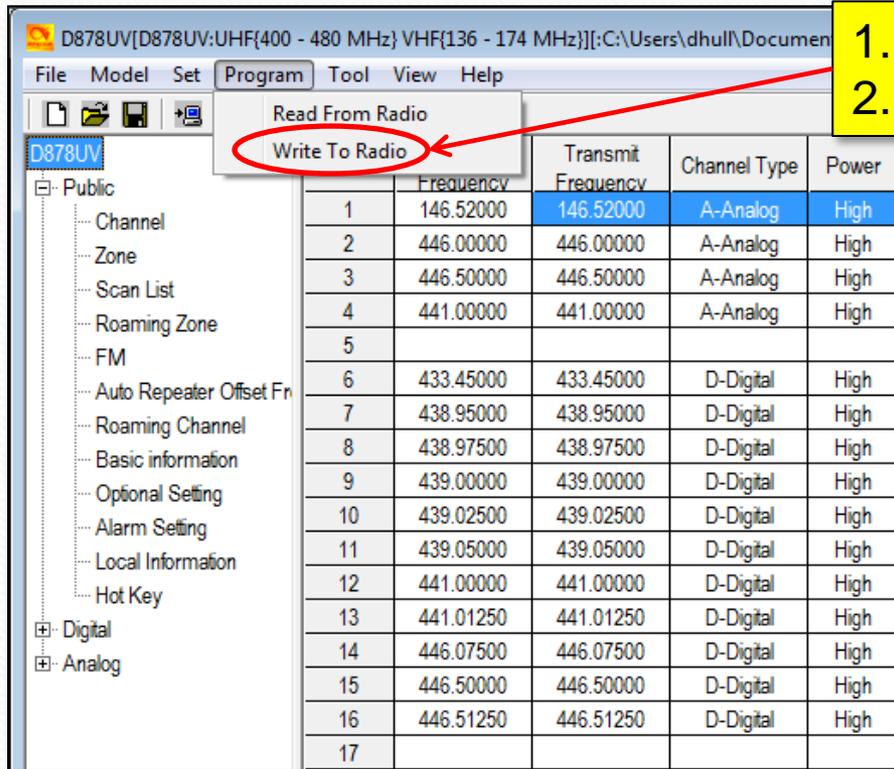
You can add as many as you like, but only one can be active at time. You will select which one via a menu option from the key pad. This is an AnyTone UV-8x8 series unique feature which is sort of nice.

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

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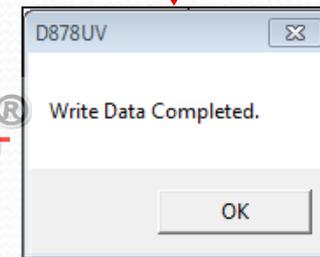
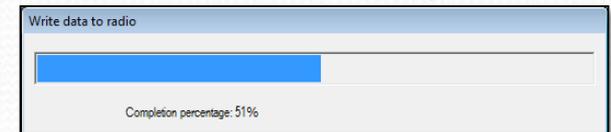
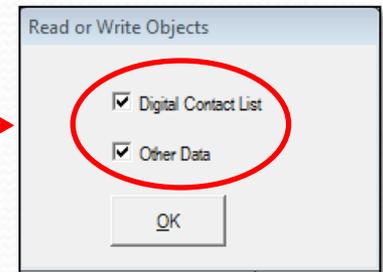
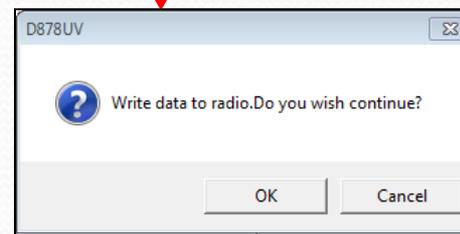
Load your new code plug:

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



The screenshot shows the CPS software interface for a D878UV radio. The 'Program' menu is open, and the 'Write To Radio' option is circled in red. A red arrow points from this option to the first step in the yellow box. The interface also displays a table of radio channels.

	Frequency	Transmit Frequency	Channel Type	Power
1	146.52000	146.52000	A-Analog	High
2	446.00000	446.00000	A-Analog	High
3	446.50000	446.50000	A-Analog	High
4	441.00000	441.00000	A-Analog	High
5				
6	433.45000	433.45000	D-Digital	High
7	438.95000	438.95000	D-Digital	High
8	438.97500	438.97500	D-Digital	High
9	439.00000	439.00000	D-Digital	High
10	439.02500	439.02500	D-Digital	High
11	439.05000	439.05000	D-Digital	High
12	441.00000	441.00000	D-Digital	High
13	441.01250	441.01250	D-Digital	High
14	446.07500	446.07500	D-Digital	High
15	446.50000	446.50000	D-Digital	High
16	446.51250	446.51250	D-Digital	High
17				



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.

My Tone
DMR

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):

No.	TG/DMR ID	Call Alert	Name	Call Type
1	12345678	None	Contact1	Group Call
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
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20				
21				
22				
23				
24				
25				

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 OK or Next.

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

Talk Group Edit---1

Name: Contact1

Call Type: Group Call

TG/DMR ID: 12345678

Call Alert: None

Buttons: OK, Cancel, Previous, Next



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

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 connecting to other BrandMeister talkgroups

Time Slot 2

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

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DMR[™]

Contacts (group Calls):

The screenshot shows the 'Talk Groups' list in the AnyTone DMR software. The list has the following data:

No.	TG/DMR ID	Call Alert	Name	Call Type
1	12345678	None	Contact1	Group Call
2	3106	None	California	Group Call
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

The 'Talk Groups' entry in the left sidebar is circled in red. A red arrow points from this entry to the 'California' entry in the main table. Another red arrow points from the 'California' entry to a context menu that is open over it. The context menu contains the following options:

Copy	Ctrl+C
Cut	Ctrl+X
Paste	Ctrl+V
Insert(Paste)	Ctrl+I
Delete	Del

A yellow text box with the following instructions is overlaid on the screenshot:

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:

The screenshot displays the AnyTone software interface. The main window shows a table with columns: No., TG/DMR ID, Call Alert, Name, Call Type, and an empty column. The table contains 8 rows of data. A yellow callout box is overlaid on the table, providing instructions. A 'Talk Group Edit' dialog box is open, showing fields for Name (WorldWide), Call Type (Group Call), TG/DMR ID (91), and Call Alert (None). The AnyTone DMR logo is visible at the bottom of the interface.

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

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					
6					
7					
8					
20					
21					
22					
23					
24					
25					
26					

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DMR[™]

Final Populated Group Call List:

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				
22				

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.

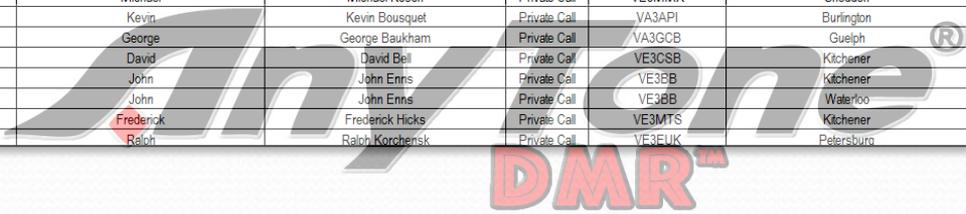
“Private Call” ID’s

D878UV[D878UV:UHF(400 - 480 MHz):VHF(136 - 174 MHz)][:C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181204_AT878_KC6N_Virgin.rdt]

File Model Set Program Tool View Help

No.	TG/DMR ID	Call Alert	Name	City	Call Type	Repeater Number	State/Prov	Country	Remarks
1	6034	None	Nigel	Nigel Utting	Private Call	GJ7LJJ	St. Saviour	Jersey	United Kingdom
2	44300	None	Andy	Andy	Private Call	GW1SYG	Deeside		United Kingdom
3	1023001	None	Wayne	Wayne Edward	Private Call	VE3THW	Toronto	Ontario	Canada
4	1023002	None	Mathieu	Mathieu Goulet	Private Call	VA3ECM	Ottawa	Ontario	Canada
5	1023003	None	Guy	Guy Charron	Private Call	VE3QC	Gloucester	Ontario	Canada
6	1023004	None	Louella	Louella Noble	Private Call	VE3LDY	Little Current	Ontario	Canada
7	1023005	None	Jeffrey	Jeffrey Noble	Private Call	VE3JFN	Little Current	Ontario	Canada
8	1023006	None	Allan	Allan Harvey	Private Call	VA3UZ	Sparta	Ontario	Canada
9	1023007	None	Hans	Hans Bockholt	Private Call	VA3BOC	Cornwall	Ontario	Canada
10	1023								
11	1023								
12	1023								
13	1023								
14	1023								
15	1023								
16	1023								
17	1023								
18	1023								
19	1023								
20	1023								
21	1023								
22	1023								
23	1023								
24	1023								
25	1023025	None	Gregory	Gregory Green	Private Call	VA3ZDX	Alisa Craig	Ontario	Canada
26	1023026	None	David	David Bohan	Private Call	VE3ELX	London	Ontario	Canada
27	1023027	None	Louis	Louis Piccolo	Private Call	VE3LPY	Windsor	Ontario	Canada
28	1023028	None	Kevin	Kevin Bousquet	Private Call	VA3API	Burlington	Ontario	Canada
29	1023029	None	David	David Sangwin	Private Call	VA3NSC	Port Perry	Ontario	Canada
30	1023030	None	Alexander	Alexander Blais	Private Call	VE3OZT	Kitchener	Ontario	Canada
31	1023031	None	Perry	Perry Rubin	Private Call	VA3PMR	Thornhill	Ontario	Canada
32	1023032	None	Tedd	Tedd Doda	Private Call	VE3TJD	Petersburg	Ontario	Canada
33	1023033	None	Andrew	Andrew Moss	Private Call	VE3YES	Caledon	Ontario	Canada
34	1023034	None	Paul	Paul Becker	Private Call	VE3KPB	Oshawa	Ontario	Canada
35	1023035	None	William	William Riddell	Private Call	VE3WFR	Kitchener	Ontario	Canada
36	1023036	None	Richard	Richard William	Private Call	VE3UOD	Cannington	Ontario	Canada
37	1023037	None	Rejean	Rejean Potvin	Private Call	VA3RMP	Kapuskasing	Ontario	Canada
38	1023038	None	Michael	Michael Kosch	Private Call	VE3MMX	Shedden	Ontario	Canada
39	1023039	None	Kevin	Kevin Bousquet	Private Call	VA3API	Burlington	Ontario	Canada
40	1023040	None	George	George Baukham	Private Call	VA3GCB	Guelph	Ontario	Canada
41	1023041	None	David	David Bell	Private Call	VE3CSB	Kitchener	Ontario	Canada
42	1023042	None	John	John Ennis	Private Call	VE3EB	Kitchener	Ontario	Canada
43	1023043	None	John	John Ennis	Private Call	VE3BB	Waterloo	Ontario	Canada
44	1023044	None	Frederick	Frederick Hicks	Private Call	VE3MTS	Kitchener	Ontario	Canada
45	1023045	None	Ralph	Ralph Korshensk	Private Call	VE3EUK	Petersburg	Ontario	Canada

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

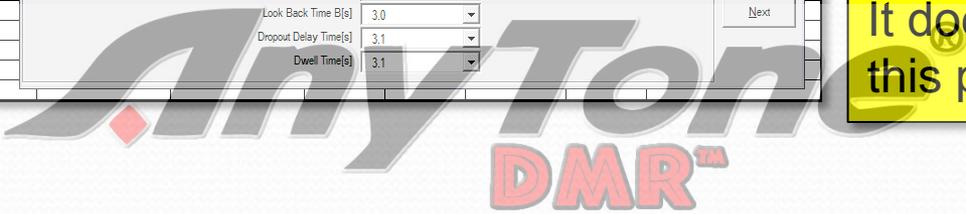


Create two scan groups

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	PAPA Woodson	8	Channel 1	Channel 2	1.5	2.5	2.9	2.9
2	ZumSpot	2	Off	Off	2.0	3.0	3.1	3.1
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
22								
23								
24								
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28								
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30								
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36								
37								
38								
39								
40								
41								

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

D878UV[D878UV:UHF{400 - 480 MHz} VHF{136 - 174 MHz}]:[C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181204_AT878_KC6N_Virgin_With_TGs.rdt]

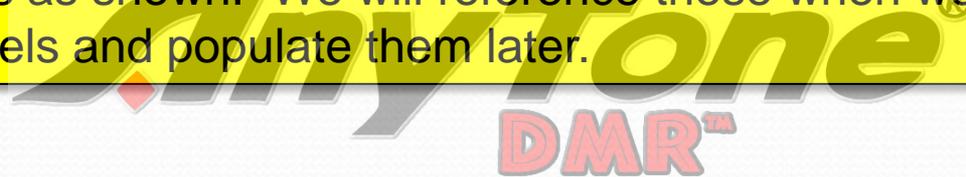
File Model Set Program Tool View Help

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
- 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	PAPA Woodson	8	Channel 1	Channel 2	1.5	2.5	2.9	2.9
2	ZumSpot	2	Off	Off	2.0	3.0	3.1	3.1
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

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 connecting to other BrandMeister talkgroups

The talk group ID for the SD Hangout TG is 310014

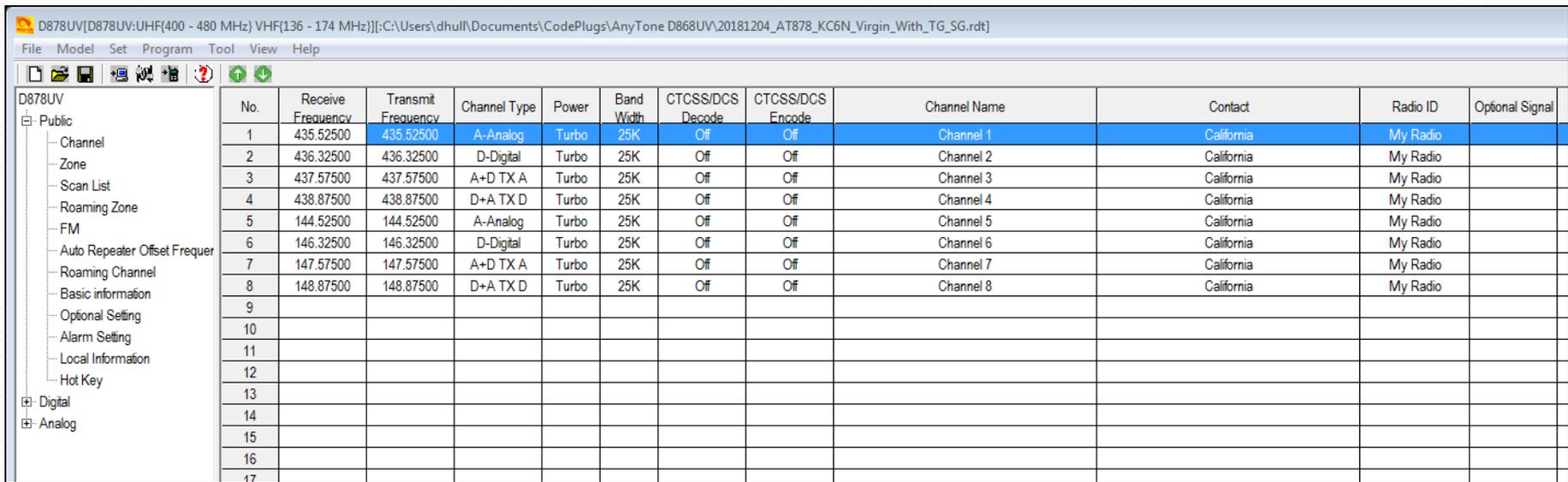
Digital Channel Creation

- 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



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											

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

The screenshot shows the AnyTone DMR software interface. On the left, a tree view shows 'Channel' selected. The main window displays a table of channels. A yellow box with instructions points to the 'Channel' entry in the tree and row 10 in the table. The 'Channel Information Edit' dialog box is open, showing settings for Channel 9.

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name	Contact	Radio ID
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					
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										

Channel Information Edit---10

Channel Name: Channel 9

Receive Frequency: 448.52000
 Transmit Frequency: 443.52000
 Correct Frequency[Hz]: 0

Channel Type: D-Digital
 Transmit Power: High
 Band Width: 12.5K
 TX Permit: Same Color Code
 Scan List: PAPA Woodson

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

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

Buttons: OK, Cancel, Previous, Next

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

No.	Receive Frequency	Transmit Frequency	Channel Type
1	435.52500	435.52500	A-Analog
2	436.32500	436.32500	D-Digital
3	437.57500	437.57500	A+D TX A
4	438.87500	438.87500	D+A TX D
5	144.52500	144.52500	A-Analog
6	146.32500	146.32500	D-Digital
7	147.57500	147.57500	A+D TX A
8	148.87500	148.87500	D+A TX D
9			
10	448.52000	443.52000	D-Digital
11	448.52000	443.52000	D-Digital
12			
13			
14			
15			
16			

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name
1	435.52500	435.52500	A-Analog	Turbo	25K	Off	Off	Channel 1
2	436.32500	436.32500	D-Digital	Turbo	25K	Off	Off	Channel 2
3	437.57500	437.57500	A+D TX A	Turbo	25K	Off	Off	Channel 3
4	438.87500	438.87500	D+A TX D	Turbo	25K	Off	Off	Channel 4
5	144.52500	144.52500	A-Analog	Turbo	25K	Off	Off	Channel 5
6	146.32500	146.32500	D-Digital	Turbo	25K	Off	Off	Channel 6
7	147.57500	147.57500	A+D TX A	Turbo	25K	Off	Off	Channel 7
8	148.87500	148.87500	D+A TX D	Turbo	25K	Off	Off	Channel 8
9								
10	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel 9
11	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel 10
12								
13								
14								
15								

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.

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

Woodson CH Templates

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]

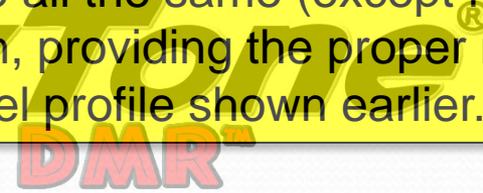
File Model Set Program Tool View Help

D878UV

- Public
 - Channel
 - Zone
 - Scan List
 - Roaming Zone
 - FM
 - Auto Repeater Offset Frequer
 - 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
 - 100001---120000

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name	Contact	Radio ID
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	Channel 9	California	KC6N
11	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel10	California	KC6N
12	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel11	California	KC6N
13	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel12	California	KC6N
14	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel13	California	KC6N
15	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel14	California	KC6N
16	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel15	California	KC6N
17	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel16	California	KC6N
18	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel17	California	KC6N
19	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel24	California	KC6N
20	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel23	California	KC6N
21	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel22	California	KC6N
22	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel21	California	KC6N
23	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel20	California	KC6N
24	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	Channel19	California	KC6N
25										

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

Off	Off	Channel 7	California	KC6N
Off	Off	Channel 8	California	KC6N

Channel Information Edit---10

Channel Name: WUD Local

Receive Frequency: 448.52000
Transmit Frequency: 443.52000
Correct Frequency(Hz): 0

Channel Type: D-Digital
Transmit Power: High
Band Width: 12.5K
TX Permit: Same Color Code
Scan List: PAPA Woodson

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

Exclude channel from roaming: off

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

2TONE Decode: 1
Custom CTCSS: 251.1

Reverse:

OK Cancel Previous Next

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.

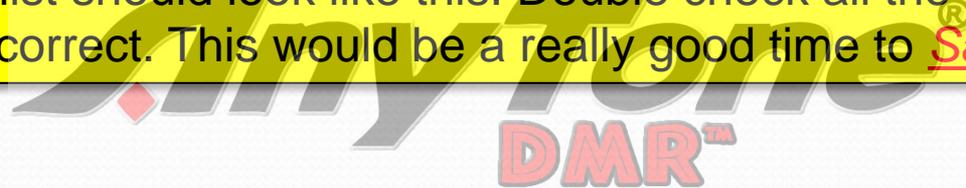
Enter remaining channels

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

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 Parrot 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

D878UV[D878UV:UHF(400 - 480 MHz) VHF(136 - 174 MHz)][:C:\Users\dhuln\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
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			
6	146.32500	146.32500	D-Digital	Turbo	25K	Off	Off			
7	147.57500	147.57500	A+D TX A	Turbo	25K	Off	Off			
8	148.87500	148.87500	D+A TX D	Turbo	25K	Off	Off			
9										
10	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
11	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
12	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
13	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
14	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
15	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
16	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
17	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
18	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
19	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
20	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
21	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
22	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
23	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
24										
25										
26										

Channel Information Edit---25

Channel Name: PAPA P11

Receive Frequency: 449.38000
 Transmit Frequency: 444.38000
 Correct Frequency(Hz): 0

Channel Type: A-Analog
 Transmit Power: High
 Band Width: 25K
 Busy Lock: Off
 Scan List: PAPA Woodson

TX Prohibit Talk Around Through Mode
 Work Alone

Digital
 Contact: California
 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

Exclude channel from roaming: off

Analog
 CTCSS/DCS Decode: Off
 CTCSS/DCS Encode: CTCSS 100.0
 Squelch Mode: Carrier
 Optional Signal: Off
 DTMF ID:
 2Tone ID:
 5Tone ID:
 PTT ID: Off

Reverse
 2TONE Decode: 1
 Custom CTCSS: 251.1

OK Cancel Previous Next

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.

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name	Contact	Radio ID
1	435.52500	435.52500	A-Analog	Turbo	25K	Off	Off	Channel 1	California	KCGN
2	436.32500	436.32500	D-Digital	Turbo	25K	Off	Off	Channel 2	California	KCGN
3	437.57500	437.57500	A+D TX A	Turbo	25K	Off	Off	Channel 3	California	KCGN
4	438.87500	438.87500	D+A TX D	Turbo	25K	Off	Off	Channel 4	California	KCGN
5	144.52500	144.52500	A-Analog	Turbo	25K	Off	Off	Channel 5	California	KCGN
6	146.32500	146.32500	D-Digital	Turbo	25K	Off	Off	Channel 6	California	KCGN
7	147.57500	147.57500	A+D TX A	Turbo	25K	Off	Off	Channel 7	California	KCGN
8	148.87500	148.87500	D+A TX D	Turbo	25K	Off	Off	Channel 8	California	KCGN
9										
10	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
11	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
12	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
13	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
14	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
15	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
16	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
17	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
18	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
19	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
20	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
21	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
22	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
23	448.52000	443.52000	D-Digital	High	12.5K	Off	Off			
24										
25	449.38000	444.38000	A-Analog	High	25K	Off	Off			
26										
27										
28										
29										

Channel Information Edit ---26

Channel Name: ALOG 449.52

Receive Frequency: 449.52000
Transmit Frequency: 449.52000
Correct Frequency(Hz): 0

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

TX Prohibit
 Work Alone
 Talk Around
 Through Mode

Digital

Contact: Direct 99
Radio ID: KCGN
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

Exclude channel from roaming: off

Analog

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

Reverse

2TONE Decode: 1
Custom CTCSS: 251.1

OK Cancel Previous Next

Digital Simplex Channel

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 Fm
 - 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
 - 100001---120000
 - 120001---140000
 - 140001---160000
 - Friends List
- Analog

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name	Contact	Radio ID
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				
11	448.52000	443.52000	D-Digital	High	12.5K	Off				
12	448.52000	443.52000	D-Digital	High	12.5K	Off				
13	448.52000	443.52000	D-Digital	High	12.5K	Off				
14	448.52000	443.52000	D-Digital	High	12.5K	Off				
15	448.52000	443.52000	D-Digital	High	12.5K	Off				
16	448.52000	443.52000	D-Digital	High	12.5K	Off				
17	448.52000	443.52000	D-Digital	High	12.5K	Off				
18	448.52000	443.52000	D-Digital	High	12.5K	Off				
19	448.52000	443.52000	D-Digital	High	12.5K	Off				
20	448.52000	443.52000	D-Digital	High	12.5K	Off				
21	448.52000	443.52000	D-Digital	High	12.5K	Off				
22	448.52000	443.52000	D-Digital	High	12.5K	Off				
23	448.52000	443.52000	D-Digital	High	12.5K	Off				
24										
25	449.38000	444.38000	A-Analog	High	25K	Off				
26	449.52000	449.52000	A-Analog	High	25K	Off				
27										
28										
40										
41										
42										

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

Channel Information Edit---27

Channel Name: Channel 9

Receive Frequency: 441.12500
 Transmit Frequency: 441.12500
 Correct Frequency[Hz]: 0

Channel Type: D-Digital
 Transmit Power: High
 Band Width: 12.5K
 TX Permit: Always
 Scan List: None

TX Prohibit Talk Around Through Mode
 Work Alone

Digital

Contact: Direct 99
 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

Exclude channel from roaming: off

Analog

CTCSS/DCS Decode: Off
 CTCSS/DCS Encode: Off
 Squelch Mode: Carrier
 Optional Signal: Off

DTMF ID: []
 Ztone ID: 1
 Stone ID: 1
 PTT ID: Off

Reverse

ZTONE Decode: 1
 Custom CTCSS: 251.1

OK Cancel Previous Next

AT D878 CodePlug 101

Part IIIc

Code Plug management Concepts
(Populate the zone and scan lists)



Create Woodson Zone

D878UV[D878UV:UHF(400 - 480 MHz) VHF(136 - 174 MHz)][C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181204_AT878_KC6N_Virgin_With_TG_SG_CH.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	Zone Channels	A Channel	B Channel
1	Zone 1	8	Channel 1	Channel 1
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				

Zone Edit---1

Zone Name: Zone 1

A Channel: Channel 1

B Channel: Channel 1

Available Channel

10	WUD Local
11	WUD SoCal
12	WUD SoCal 1
13	PAPA Bridge
14	PAPA Chat
15	WUD California
16	WUD CAL 1
17	WUD Zone 6
18	WUD USA
19	WUD NoAmer
20	WUD WorldWide
21	WUD TAC 310
22	WUD Parrot GC
23	WUD SD Hangout
25	PAPA P11
26	ALOG 449.52
27	Channel 9

Zone Channel Member

1	Channel 1
2	Channel 2
3	Channel 3
4	Channel 4
5	Channel 5
6	Channel 6
7	Channel 7
8	Channel 8

AnyTone[®]

DMR™

OK Cancel Previous Next

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

The screenshot displays the AnyTone DMR software interface. The main window shows a table of zones, with the 'PAPA Woodson' zone selected. A 'Zone Edit' dialog box is open, showing the configuration for this zone. The 'Zone Name' is 'PAPA Woodson', 'A Channel' is 'WUD Local', and 'B Channel' is 'PAPA Chat'. The 'Available Channel' list includes channels 1 through 9, 25, 26, and 27. The 'Zone Channel Member' list includes channels 10, 14, 13, 11, 12, 15, 16, 17, 18, 19, 20, 23, 21, and 22. The 'Order By' dropdown is set to 'ID'. The 'AnyTone DMR' logo is visible at the bottom of the interface.

No.	Name	Zone Channels	A Channel	B Channel
1	PAPA Woodson	14	WUD Local	PAPA Chat
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
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23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				

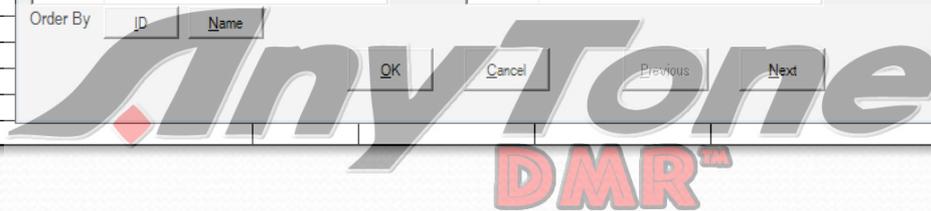
Available Channel	Zone Channel Member
1 Channel 1	10 WUD Local
2 Channel 2	14 PAPA Chat
3 Channel 3	13 PAPA Bridge
4 Channel 4	11 WUD SoCal
5 Channel 5	12 WUD SoCal 1
6 Channel 6	15 WUD California
7 Channel 7	16 WUD CAL 1
8 Channel 8	17 WUD Zone 6
25 PAPA P11	18 WUD USA
26 ALOG 449.52	19 WUD NoAmer
27 Channel 9	20 WUD WorldWide
	23 WUD SD Hangout
	21 WUD TAC 310
	22 WUD Parrot GC

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

D878UV[D878UV:UHF(400 - 480 MHz) VHF(136 - 174 MHz)]:[C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181204_AT878_KC6N_Virgin_With_TG_SG_CH_ZN.rdt]

File Model Set Program Tool View Help

D878UV

Public

Channel

Zone

Scan List

Roaming Zone

FM

Auto Repeater Offset Frequen

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	PAPA Woodson	8	Channel 1	Channel 2	1.5	2.5	2.9	2.9
2	ZumSpot	2	Off	Off	2.0	3.0	3.1	3.1
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
38								
39								
40								

Scan Edit--1

Scan List Name: PAPA Woodson

Available Channel

10	WUD Local
11	WUD SoCal
12	WUD SoCal 1
13	PAPA Bridge
14	PAPA Chat
15	WUD California
16	WUD CAL 1
17	WUD Zone 6
18	WUD USA
19	WUD NoAmer
20	WUD WorldWide
21	WUD TAC 310
22	WUD Parrot GC
23	WUD SD Hangout
25	PAPA P11
26	ALOG 449.52
27	Channel 9

Scan Channel Member

1	Channel 1
2	Channel 2
3	Channel 3
4	Channel 4
5	Channel 5
6	Channel 6
7	Channel 7
8	Channel 8

Order By: ID, Name

Priority Channel Select: Off

Priority Channel 1: Channel 1

Priority Channel 2: Channel 2

Revert Channel: Selected

Look Back Time A[s]: 1.5

Look Back Time B[s]: 2.5

Dropout Delay Time[s]: 2.9

Dwell Time[s]: 2.9

AnyTone DMR™

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

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.

Final Woodson Scan List

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	PAPA Woodson	8	Channel 1	Channel 2	1.5	2.5	2.9	2.9
2	ZumSpot	2	Off	Off	2.0	3.0	3.1	3.1
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
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37								
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39								
40								

Scan Edit--1

Scan List Name: PAPA Woodson

Available Channel

10	WUD Local
12	WUD SoCal 1
13	PAPA Bridge
14	PAPA Chat
16	WUD CAL 1
17	WUD Zone 6
18	WUD USA
19	WUD NoAmer
20	WUD WorldWide
21	WUD TAC 310
22	WUD Parrot GC
23	WUD SD Hangout
26	ALOG 449.52
27	Channel 9
1	Channel 1
2	Channel 2
3	Channel 3
4	Channel 4
5	Channel 5
6	Channel 6
7	Channel 7
8	Channel 8

Scan Channel Member

11	WUD SoCal
15	WUD California
25	PAPA P11

Order By: ID, Name

Priority Channel Select: Off

Priority Channel 1: Off

Priority Channel 2: Off

Revert Channel: Selected

Look Back Time A[s]: 1.5

Look Back Time B[s]: 2.5

Dropout Delay Time[s]: 2.9

Dwell Time[s]: 2.9

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 IIIId

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

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HotSpot CH Template

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name
1	435.52500	435.52500	A-Analog	Turbo	25K	Off	Off	Channel 1
2	436.32500							
3	437.57500							
4	438.87500							
5	144.52500							
6	146.32500							
7	147.57500							
8	148.87500							
9								
10	448.52000							
11	448.52000							
12	448.52000							
13	448.52000							
14	448.52000							
15	448.52000							
16	448.52000							
17	448.52000							
18	448.52000							
19	448.52000							
20	448.52000							
21	448.52000							
22	448.52000							
23	448.52000							
24								
25	449.38000							
26	449.52000							
27	441.12500							
28								
29	438.02500							
30								
31								
32								
33								
34								
35								

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

The screenshot shows a radio configuration software interface. A 'Channel Information Edit' dialog box is open, showing settings for a channel named 'ZS SoCal'. The dialog has several sections: 'Basic information' (Receive/Transmit Frequency, Power, Band Width, CTCSS/DCS Decode/Encode), 'Digital' (Channel Type, Transmit Power, Band Width, TX Permit, Scan List, Contact, Radio ID, Color Code, Slot, Receive Group List, Digital Encryption, Encryption Type), and 'Analog' (CTCSS/DCS Decode/Encode, Squelch Mode, Optional Signal, DTMF ID, 2Tone ID, 5Tone ID, PTT ID). A list of channels is visible on the right side of the dialog, including 'ZS SoCal', 'ZS SoCal 1', 'ZS PAPA Bridge', 'ZS PAPA Chat', 'ZS CA 3106', 'ZS CA 1', 'ZS Zone 6', 'ZS USA 3100', 'ZS NoAm 93', 'ZS World 91', and 'ZS SD Hangout'. A red box highlights the 'ZS SoCal' entry in the list. A red arrow points from the 'ZS SoCal' text in the 'Channel Name' field to the yellow callout box. Another red arrow points from the 'SoCal' text in the 'Contact' dropdown menu to the yellow callout box. A third red arrow points from the 'ZS SoCal' entry in the list to the yellow callout box.

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name
1	435.52500	435.52500	A-Analog	Turbo	25K	Off	Off	Channel 1
								Channel 2
								Channel 3
								Channel 4
								Channel 5
								Channel 6
								Channel 7
								Channel 8
								WUD Local
								WUD SoCal
								WUD SoCal 1
								PAPA Bridge
								PAPA Chat
								WUD California
								WUD CAL 1
								WUD Zone 6
								WUD USA
								WUD NoAmer
								WUD WorldWide
								WUD TAC 310
								WUD Parrot GC
								WUD SD Hangout
								PAPA P11
								ALOG 449.52
								Channel 9
								ZS SoCal
								ZS SoCal 1
								ZS PAPA Bridge
								ZS PAPA Chat
								ZS CA 3106
								ZS CA 1
								ZS Zone 6
								ZS USA 3100
								ZS NoAm 93
								ZS World 91
								ZS SD Hangout

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

The screenshot shows the InVention software interface. The main window displays a table of zones. The 'Zone Edit' dialog box is open, showing the 'Zone Name' field set to 'ZumSpot'. The 'Available Channel' list on the left includes channels 1 through 23, and the 'Zone Channel Member' list on the right includes channels 29 through 39. A red box highlights the 'Zone Channel Member' list, and a red arrow points from the 'Zone Name' field to the 'Zone Channel Member' list.

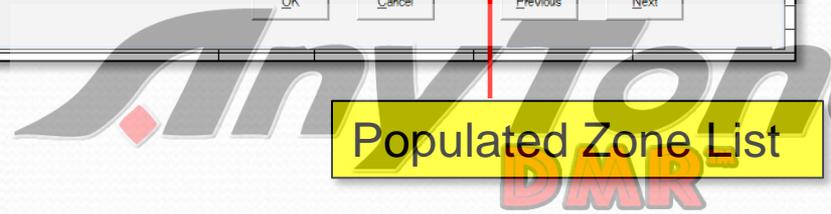
No.	Name	Zone Channels	A Channel	B Channel
1	PAPA Woodson	14	WUD Local	PAPA Chat
2	ZumSpot	11	ZS SoCal	ZS CA 3106
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
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31				
32				
33				
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37				
38				
39				

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

The screenshot shows the AnyTone DMR software interface. At the top, a table lists scan list entries. Below it, a 'Scan Edit' dialog box is open, showing the configuration for a scan list named 'ZumSpot'. The dialog includes a list of available channels, a list of scan channel members, and various scan parameters.

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	PAPA Woodson	8	Channel 1	Channel 2	1.5	2.5	2.9	2.9
2	ZumSpot	2	Off	Off	2.0	3.0	3.1	3.1

Available Channel	Scan Channel Member
17 WUD Zone 6	29 ZS SoCal
18 WUD USA	33 ZS CA 3106
19 WUD NoAmer	
20 WUD WorldWide	
21 WUD TAC 310	
22 WUD Parrot GC	
23 WUD SD Hangout	
25 PAPA P11	
26 ALOG 449.52	
27 Channel 9	
30 ZS SoCal 1	
31 ZS PAPA Bridge	
32 ZS PAPA Chat	
34 ZS CA 1	
35 ZS Zone 6	
36 ZS USA 3100	
37 ZS NoAm 93	
38 ZS World 91	
39 ZS SD Hangout	
1 Channel 1	
2 Channel 2	

Scan List Name: ZumSpot

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

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 Maintenance)



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 Wizard", 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>

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

Anyone 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
contacts_20190214060901.zip ← Newest	122872	104963	162
contacts_20190213060901.zip	122781	104895	162
contacts_20190212060901.zip	122676	104805	162
contacts_20190211060901.zip	122578	104727	162
contacts_20190210060901.zip	122455	104615	162

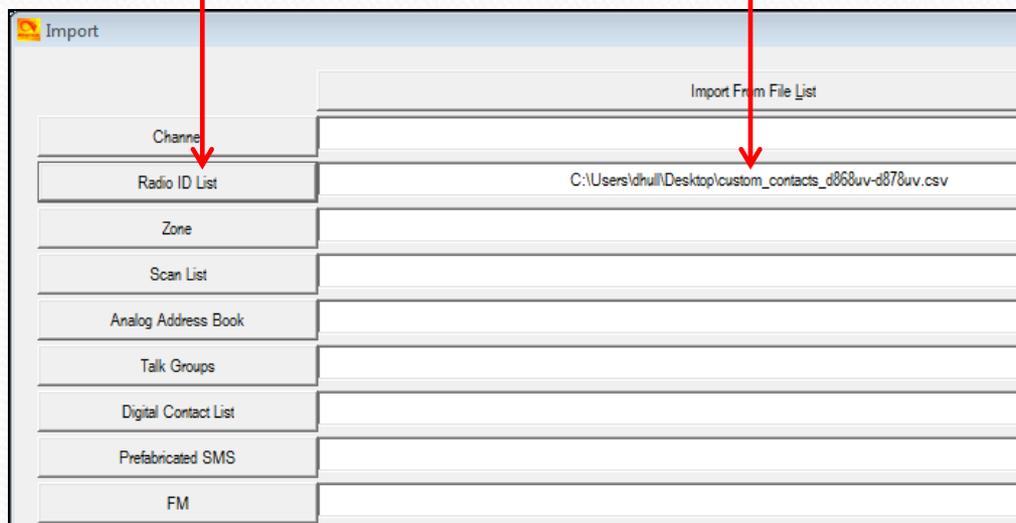
Select the newest file here, download and unzip.

© 2017 - 2019 Jim Blocker KF5IW [Home](#) [Privacy](#)

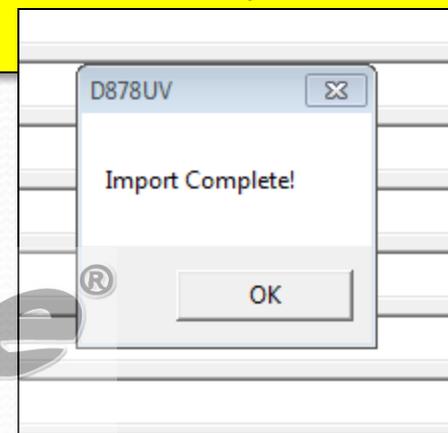
AnyTone DMR™

Contact List Operations (4)

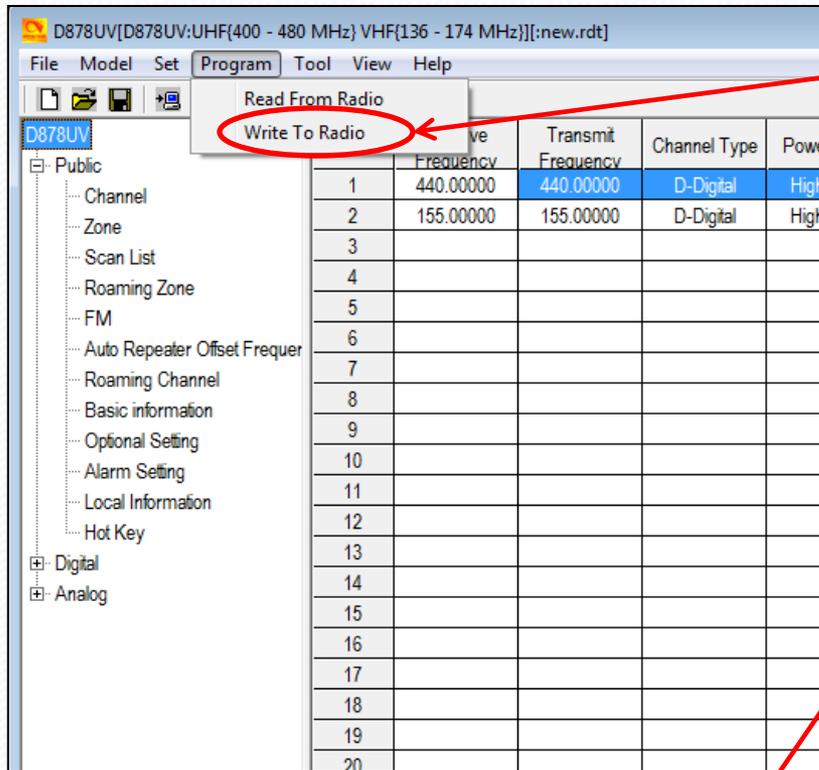
Click “Radio ID List and navigate to the newly created CSV file. It should have a name something like: “custom_contacts_d868uv-d878uv.csv”



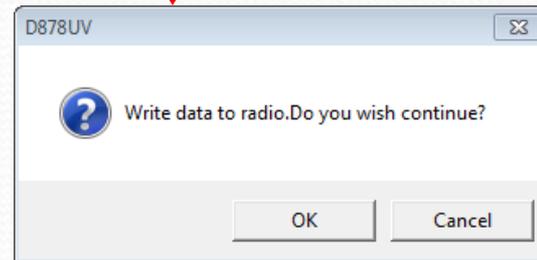
Click the “Import” button at the bottom of the dialog box. And wait for the “Import Complete” pop-up. At which point you are done. You can check the contacts section in the cps to make sure that they are there, if you like. Save your code plug.



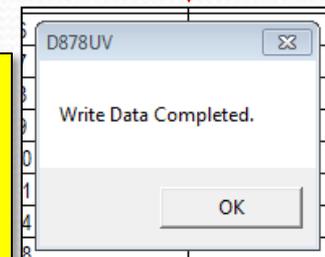
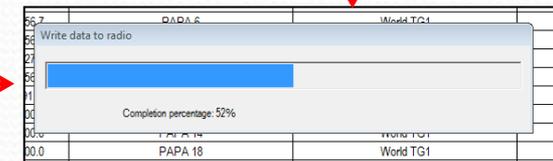
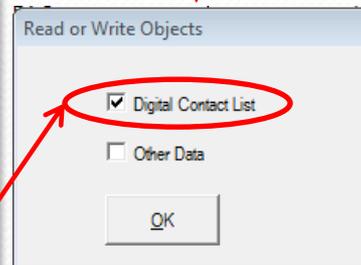
Contact List Operations (5)



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

The screenshot shows the AnyTone software interface. On the left, a tree view shows 'Roaming Channel' selected and circled in red. The main window displays a table of 29 roaming channels. A dialog box titled 'Roaming Channel Edit--1' is open over the table, showing configuration details for the selected channel (No. 7). The dialog includes fields for Receive Frequency (449.74000), Transmit Frequency (444.74000), Name (Rm BLU Slot 1), Color Code (7), and Slot (Slot1). Buttons for 'Previous', 'Next', 'OK', and 'Cancel' are visible. A red arrow points from the dialog box back to the table.

No.	Receive Frequency	Transmit Frequency	Color Code	Slot	Name
1	449.74000	444.74000	7	Slot1	Rm BLU Slot 1
2	449.74000	444.74000	7	Slot2	Rm BLU Slot 2
3	449.38000	444.38000	1	Slot1	Rm LUK Slot 1
4	449.38000	444.38000	1	Slot2	Rm LUK Slot 2
5	447.26000	442.26000	1	Slot1	Rm OAT Slot 1
6	447.26000	442.26000	1	Slot2	Rm OAT Slot 2
7	447.26000	442.26000	3	Slot1	Rm Otay Slot 1
8	447.26000	442.26000	3	Slot2	Rm Otay Slot 2
9	445.86000	440.86000	1	Slot1	Rm Pal Slot 1
10	445.86000	440.86000	1	Slot2	Rm Pal Slot 2
11	446.58000	441.58000	1	Slot1	Rm PSP Slot 1
12	446.58000	441.58000	1	Slot2	Rm PSP Slot 2
13	446.08000	441.08000	1	Slot1	Rm SDL Slot 1
14	446.08000	441.08000	1	Slot2	Rm SDL Slot 2
15	445.88000	440.88000	3	Slot1	Rm SMP Slot 1
16	445.88000	440.88000	3	Slot2	Rm SMP Slot 2
17	446.82000	441.82000	1	Slot1	Rm WUD Slot 1
18	446.82000	441.82000	1	Slot2	Rm WUD Slot 2
19	449.36000	444.36000	1	Slot1	Rm WUD Slot 1
20	449.36000	444.36000	1	Slot2	Rm WUD Slot 2
21	446.98000	441.98000	1	Slot1	Rm WUD Slot 1
22	446.98000	441.98000	1	Slot2	Rm WUD Slot 2
23	447.26000	442.26000	5	Slot1	Rm WUD Slot 1
24	447.26000	442.26000	5	Slot2	Rm WUD Slot 2
25	447.30000	442.30000	1	Slot1	Rm WUD Slot 1
26	447.30000	442.30000	1	Slot2	Rm WUD Slot 2
27	445.96000	440.96000	1	Slot1	Rm WUD Slot 1
28	445.96000	440.96000	1	Slot2	Rm WUD Slot 2
29					

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)

D878UV[D878UV:UHF(400 - 480 MHz) VHF(136 - 174 MHz)][:C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV,20190211_AT878_KC6N.rdt]

File Model Set Program Tool View Help

D878UV

- Public
 - Channel
 - Zone
 - Scan List
 - Roaming Zone**
 - FVI
 - Auto Repeater Offset Fr
 - Roaming Channel
 - Basic information
 - Optional Setting
 - Alarm Setting
 - Local Information
 - Hot Key
- Digital
- Analog

No.	Name	Roaming Channel Member
1	Roam PAPA TS1	14
2	Roam PAPA TS2	14
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
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27		
28		
29		
30		
31		

Roaming Zone Edit--1

Roaming Zone Name: Roam PAPA TS1

Available Roaming Channels		Roaming Zone Channel Member	
2	Rm BLU TS2	1	Rm BLU TS1
4	Rm LUK TS2	3	Rm LUK TS1
6	Rm OAT TS2	5	Rm OAT TS1
8	Rm OTY TS2	7	Rm OTY TS1
10	Rm PAL TS2	9	Rm PAL TS1
12	Rm PSP TS2	11	Rm PSP TS1
14	Rm SDL TS2	13	Rm SDL TS1
16	Rm SMP TS2	15	Rm SMP TS1
18	Rm STG TS2	17	Rm STG TS1
20	Rm SUN TS2	19	Rm SUN TS1
22	Rm SYZ TS2	21	Rm SYZ TS1
24	Rm TOR TS2	23	Rm TOR TS1
26	Rm VST TS2	25	Rm VST TS1
28	Rm WUD TS2	27	Rm WUD TS1

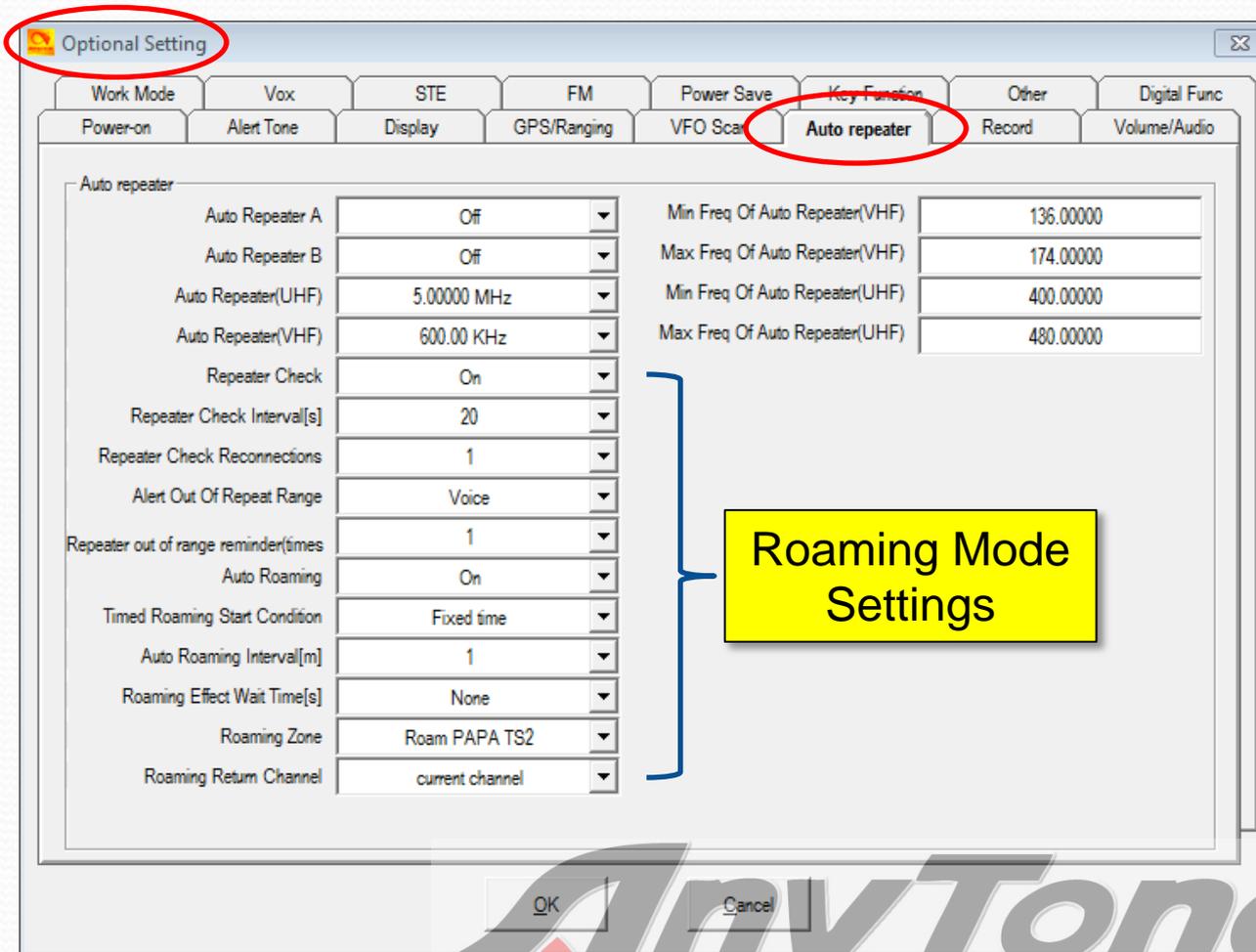
Order By: ID, Name, Up, Down

OK Cancel Previous Next

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

Auto repeater		
Auto Repeater A	Off	Min Freq Of Auto Rep
Auto Repeater B	Off	Max Freq Of Auto Rep
Auto Repeater(UHF)	5.00000 MHz	Min Freq Of Auto Rep
Auto Repeater(VHF)	600.00 KHz	Max Freq Of Auto Rep
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

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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.



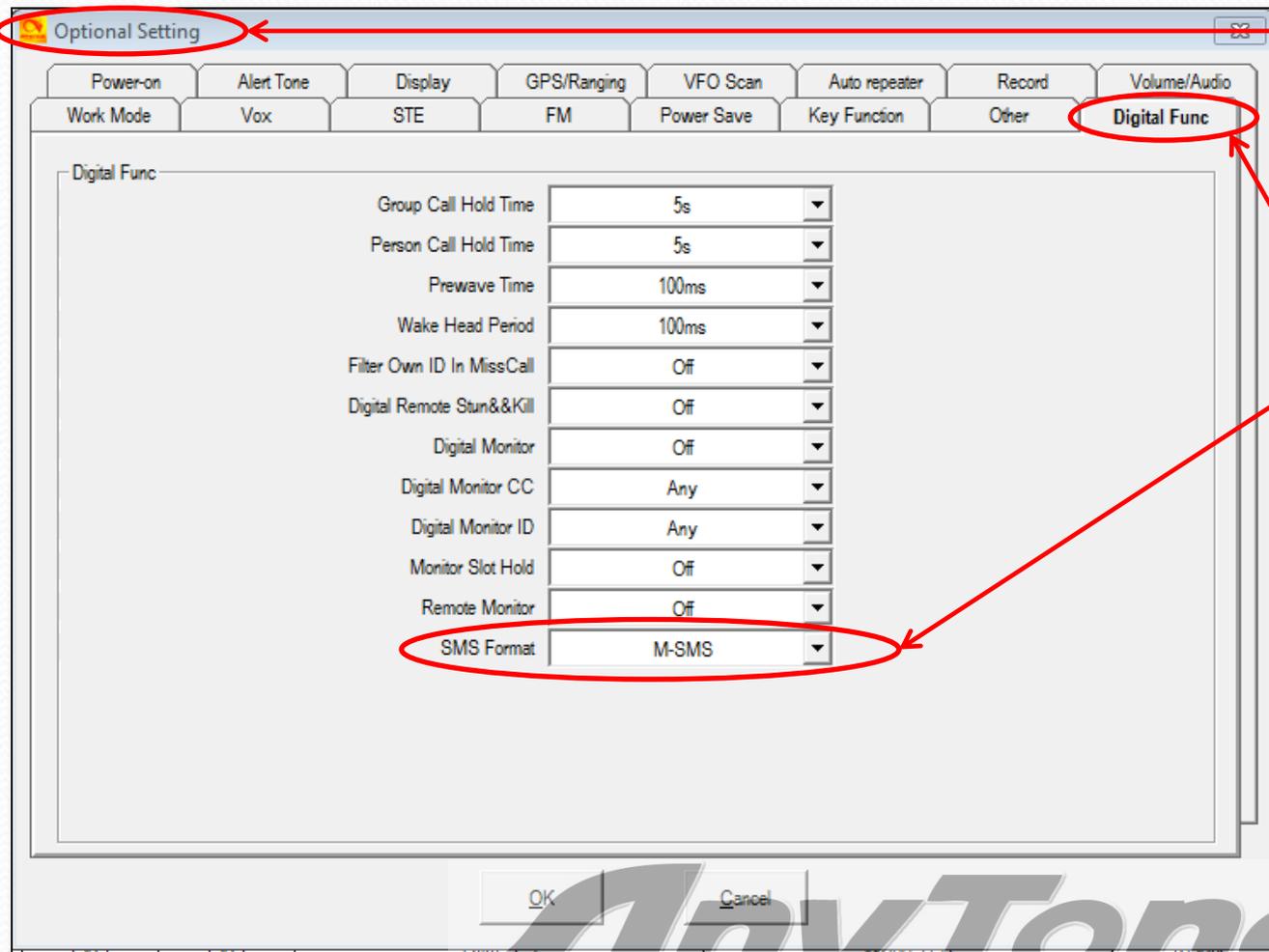
AT D868 CodePlug 101

Part V

Code Plug management Concepts
(Setting up Digital APRS)



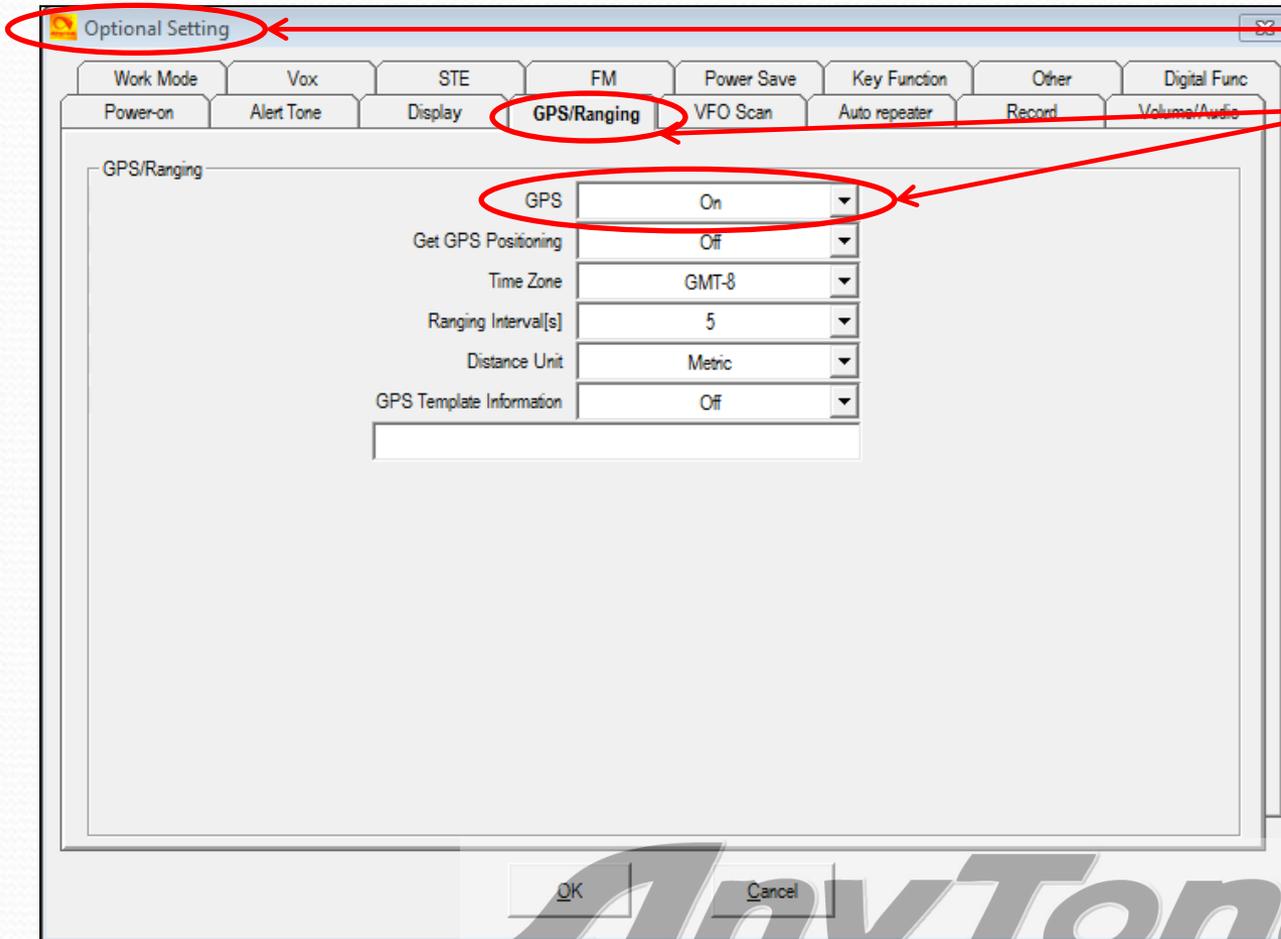
Enable Motorola SMS



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

The screenshot shows the APRS configuration dialog box. Callout 1 points to the 'APRS' menu item in the top left. Callout 2 points to the 'Manual TX Intervals[s]' field, which is set to 30. Callout 3 points to the 'Digital' section, which contains a table of 8 channels and other digital settings.

1

2

3

Manual TX Intervals[s] 30

APRS Auto TX Intervals[s] Off

Support For Roaming Off

Fixed Location Beacon Off

ddd.ddddd

Latitude 32.86850

North And South Latitude N

Longitude 117.20967

East And West Things E

Digital

No.	No.	No.
1	ZS3 CA3106	Channel Slot
2	ZS3 SoCal	Channel Slot
3	ZS3 SoCal1	Channel Slot
4	Current Channel	Channel Slot
5	Current Channel	Channel Slot
6	Current Channel	Channel Slot
7	Current Channel	Channel Slot
8	Current Channel	Channel Slot

APRS TG 310999

Call Type Private Call

Repeater Activation Delay[ms] Off

Analog

APRS TX Tone Off

Destination Call Sign APDR10

Destination SSID 0

Your Call Sign BG6LKT

Your SSID 0

APRS Symbol Table /

APRS Map Icon I

APRS Signal Path WIDE1-1,WIDE2-1

Enter Your Sending Text APRSCN

Transmission Frequency [MHz] 145.00000

Transmit Delay[ms] 0

Send Sub Tone Off

CTCSS 62.5

DCS D021

Prewave Time[ms] 0

Transmit Power Low

OK Cancel

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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

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

TX Prohibit Talk Around Through Mode
 Work Alone Digi APRS RX

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

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.

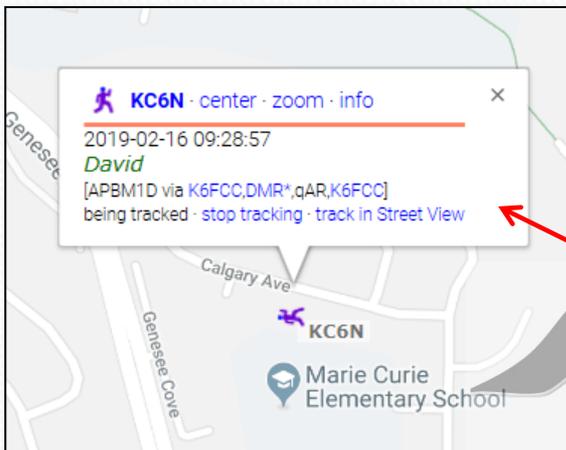
Verify Operation



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>



AnyTone[®]
DMR[™]

AT D868 CodePlug 101

Part VI

Code Plug management Concepts

(Bells and Whistles)



Programmable Buttons

Optional Setting

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

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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

Alert Tones

Optional Setting

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

Alert Tone

SMS Alert Ring
Call Alert Ring
Digi Call ResetTone Off
Call Tone Digital
Key Tone Off
Idle Channel Tone Off
Startup Sound On
Volume Change Prompt On
Key Sound Adjustable Adjustable

Call Tone

	Frequency[Hz]	Period[ms]	Play
First Tone	1580	10	
Second Tone	1500	50	
Third Tone	1050	40	
Fourth Tone	1500	40	
Fifth Tone	1335	40	

Idle Channel Tone

	Frequency[Hz]	Period[ms]	Play
First Tone	635	100	
Second Tone	950	50	
Third Tone	0	0	
Fourth Tone	0	0	
Fifth Tone	0	0	

Call Reset Tone

	Frequency[Hz]	Period[ms]	Play
First Tone	635	100	
Second Tone	950	50	
Third Tone	0	0	
Fourth Tone	0	0	
Fifth Tone	0	0	

OK Cancel

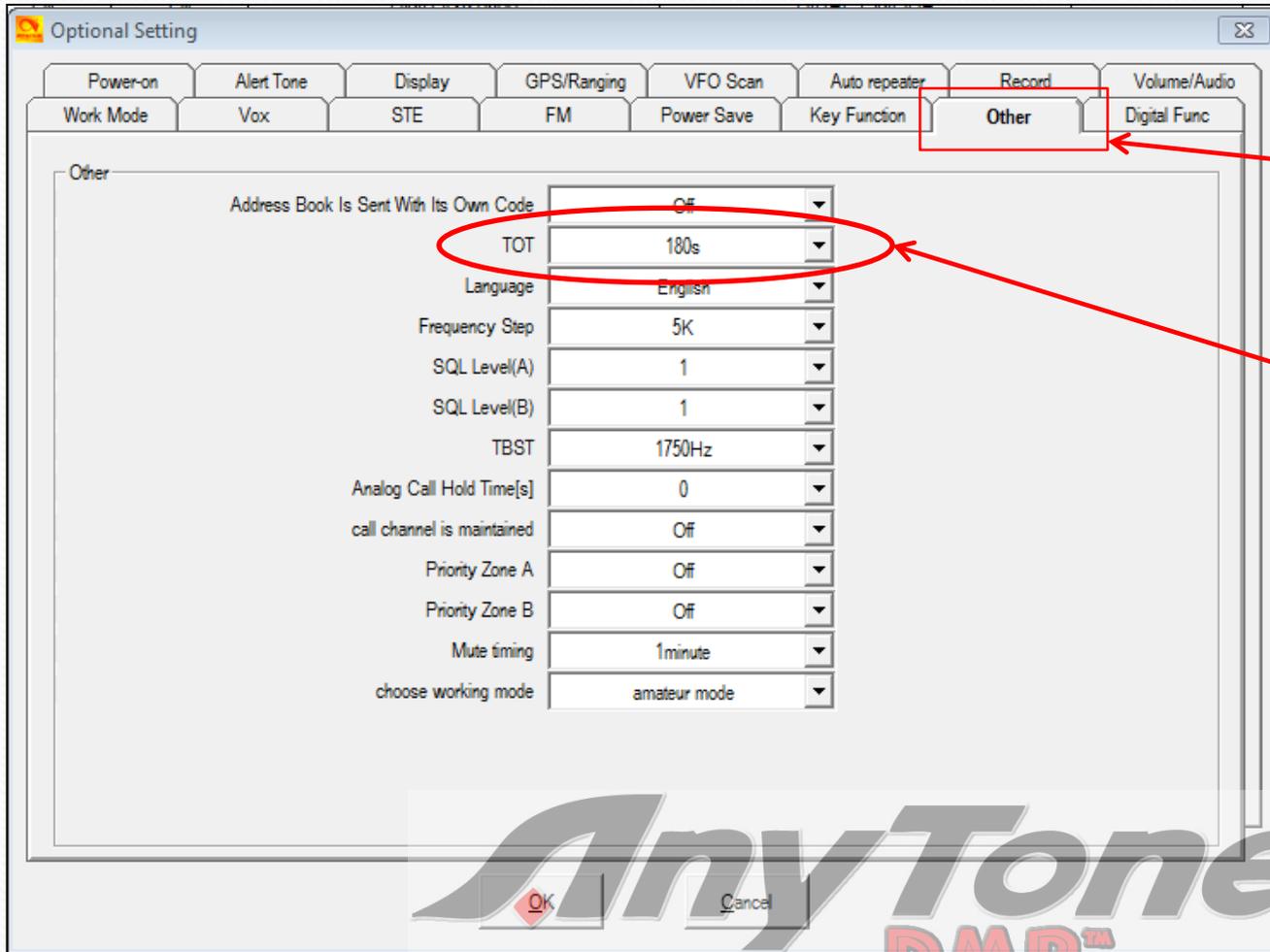
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This page allows one to program a different set of alert tones which affect the sounds that the radio makes as it is used.

The setup here makes the AT UV-878 sound like a Motorola XPR7550 (which is nice since it still doesn't "cost" like one).

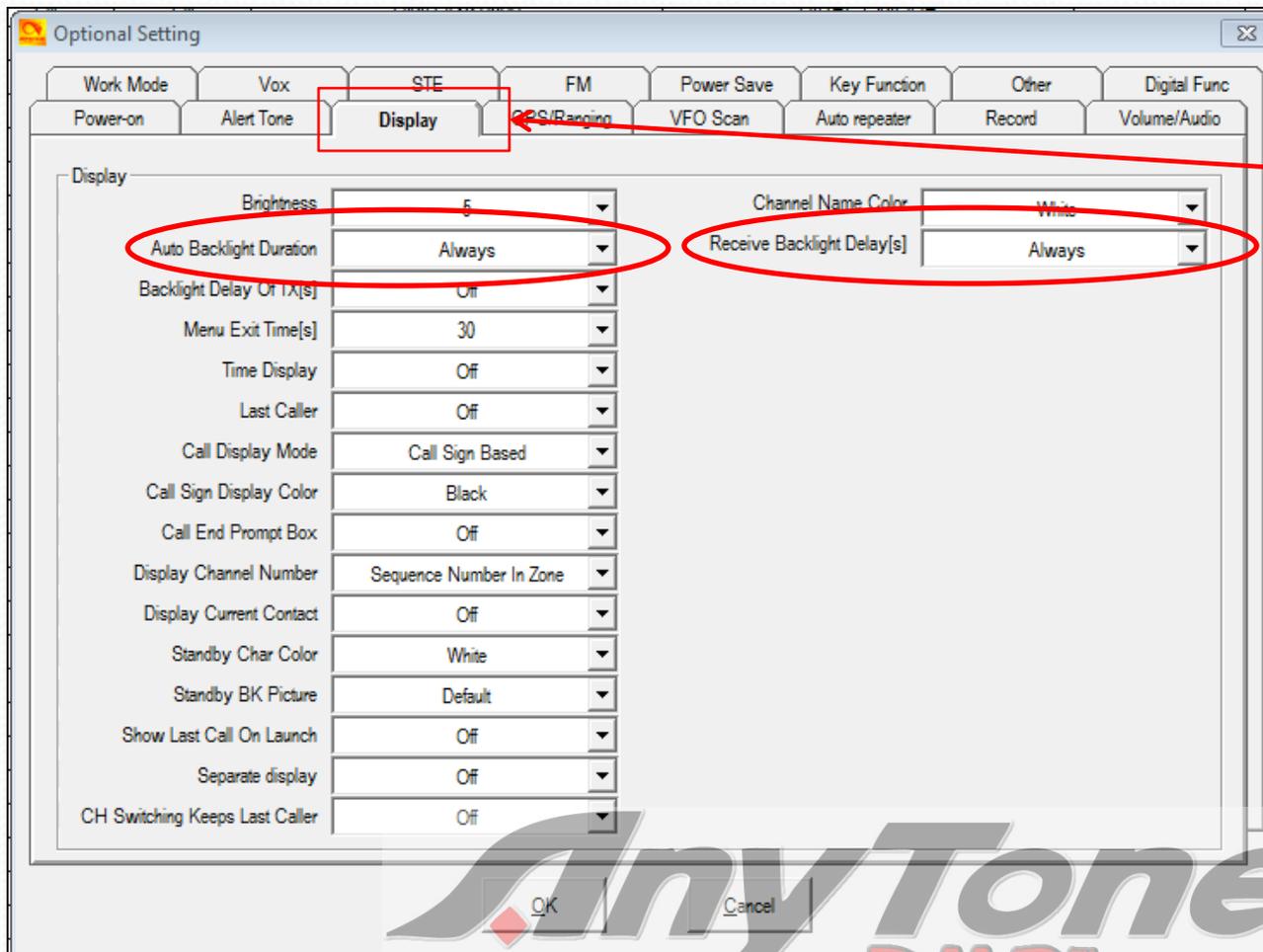
Thanks to Brian, KC2GNV for working this out.

“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.

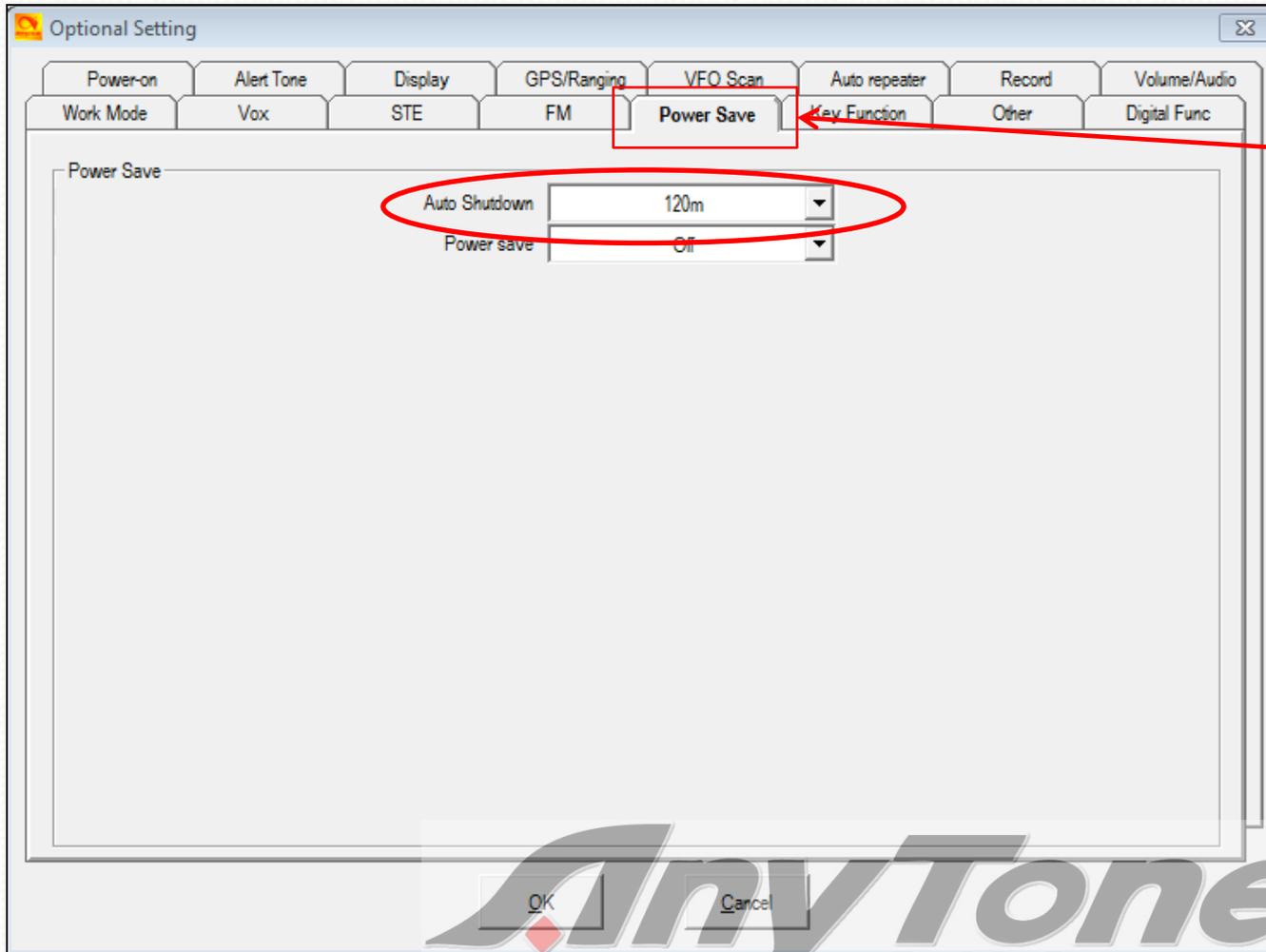
Display Options



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.

OK Cancel **AnyTone**®
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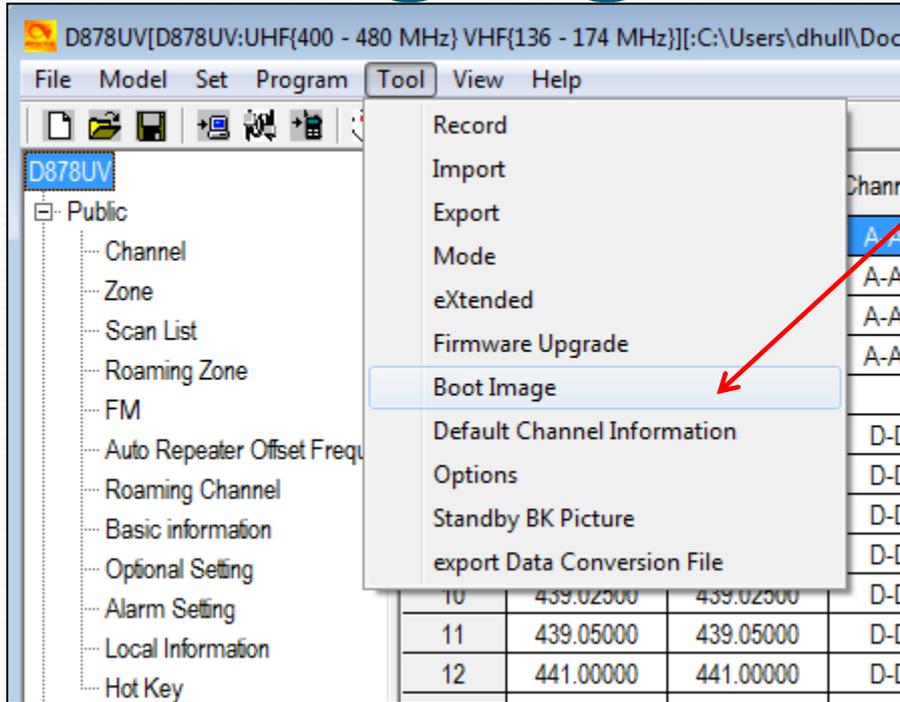
Power Save



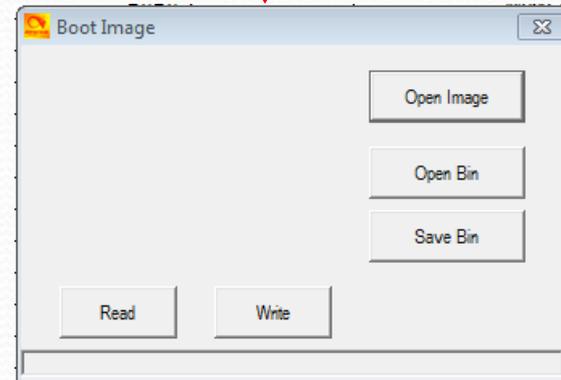
The "Power Save" tab provides an option set your to turn itself off automatically after a predetermined period of inactivity. This is a handy feature not generally provided on "commercial" radios.

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



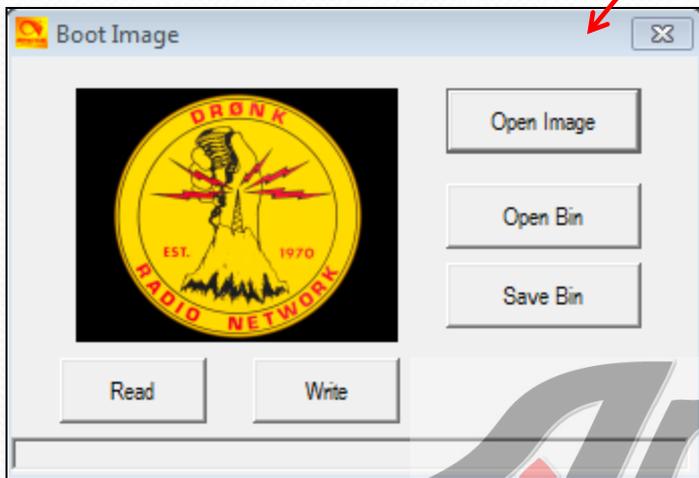
Select "Open Image" to bring up a file browser window. Point this to a JPEG file of an image you want to use as your boot image. Click "Write" to write this image to the radio. You can also use a binary file, in which case you would click "Open Bin" then select "Write" to write this image to the radio.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

Changing Screen Image (2)

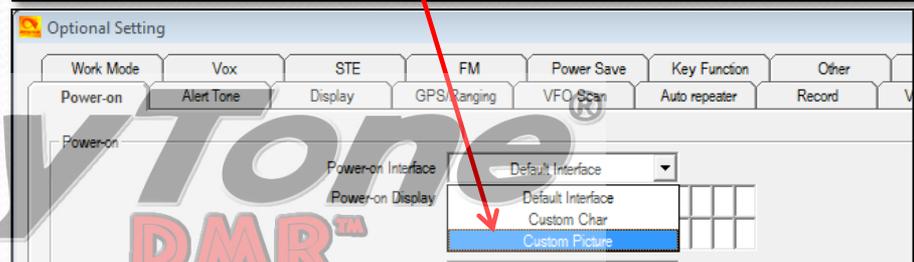


Here is an example of a .bin image available on the PAPA web site.

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.

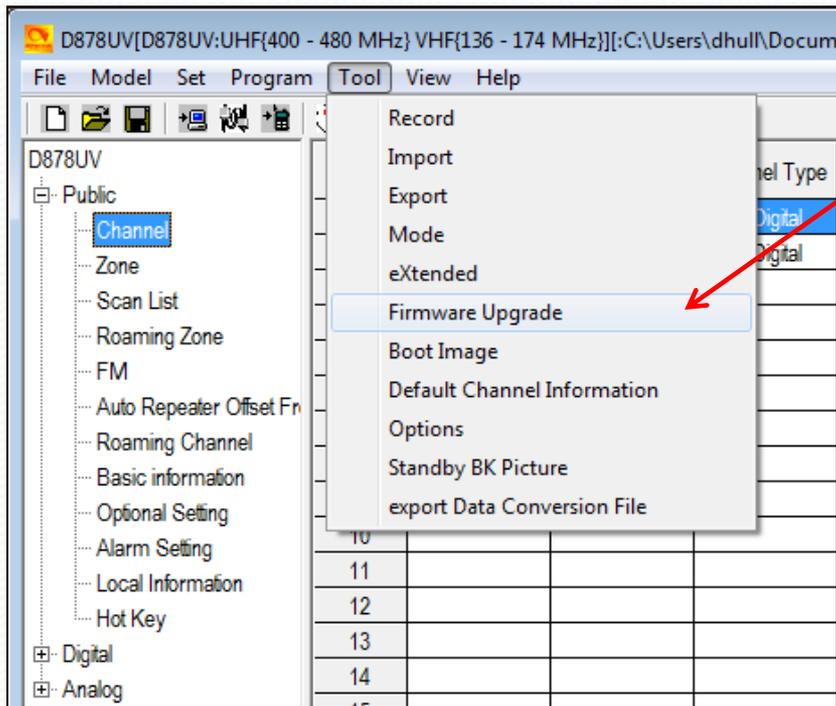


There is one more step, after this which is that you will need to go into "Optional Setting" and on the "Power-on" tab, in the "Power-on Interface" pull down, select "Custom Picture"

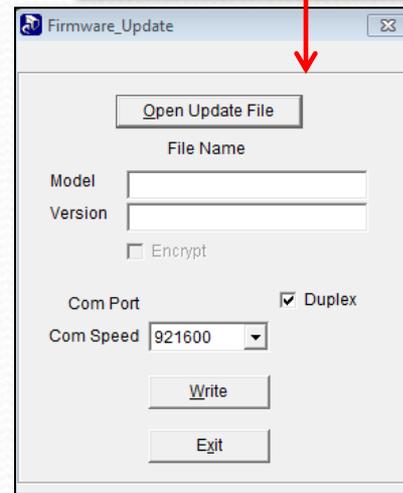


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Upgrading Firmware



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
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