

Quick Bring Up AnyTone AT-D878UV

Quick Bring Up of AnyTone 868/878

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Introduction

The aim of this document is to help a new Anytone 868/878 owner get his/her new DMR radio up and running quickly. You will learn how register and get a DMR ID, how to load and operate the CPS (Customer Programming Software), read and write to the radio and load a code plug. Many ham clubs that operate DMR repeaters, provide code plugs for users in their local community. The Anytone AT-878UV is used in these examples but much of this is applicable to the AT-868 as well.

What you will need

- A PC Running Windows 7 or later
- An Anytone AT-D878UV Radio
 - Fully charged battery
 - USB Programming Cable
- The Radio Software and the USB Driver
 - <http://www.connectsystems.com/software/top/D878UV.htm>
- A DMR ID: <https://www.radioid.net/register#!>
- A Code Plug File: www.papasys.com

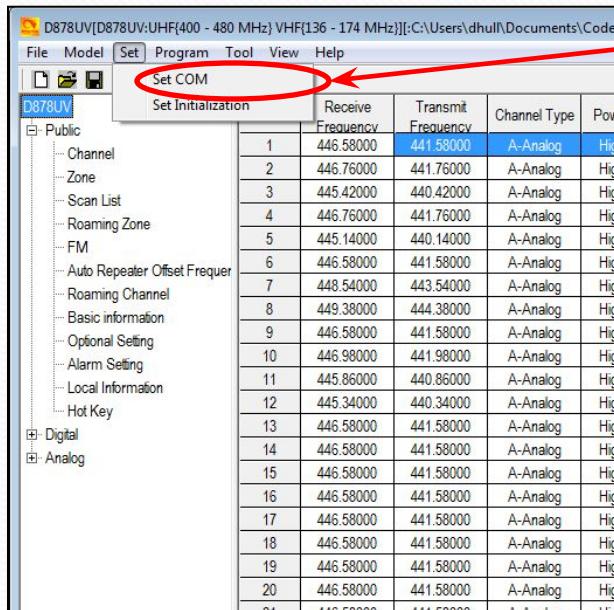
New radio – first steps (1)

- Unpack radio and charge the battery
- Download and install the USB driver (may not be needed for Windows 10)
- 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 computer to acknowledge the USB connection.

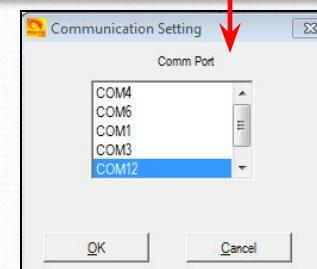
New radio – first steps (2)

- Launch the CPS
- Set your serial port.
- Read the radio and save the Original Code Plug.
- Load the new code plug into the CPS
- Set your DMR ID (you can get a DMR ID at:
<https://www.radiooid.net/register#!>)
- See screenshots on following pages

Set your Com Port:

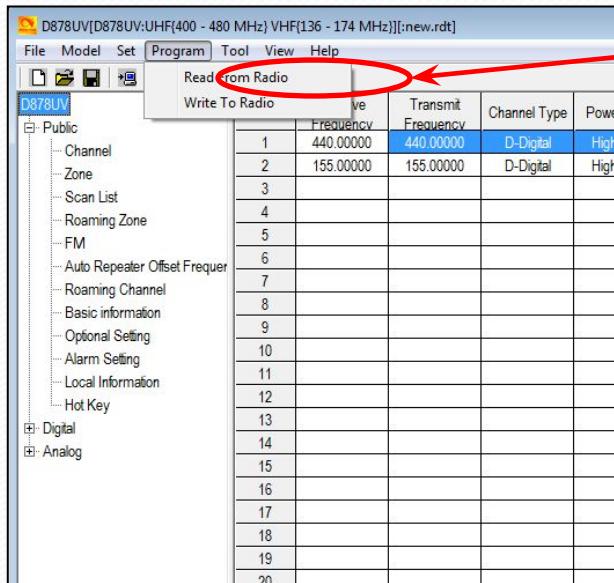


1. Before you can do anything with the UV-878 you have to set up the serial port. Click “Set COM” under the Set Pull-down.
2. Select the com port for your radio from the options provided in the pop-up. Note that your radio needs to be connected and powered up.

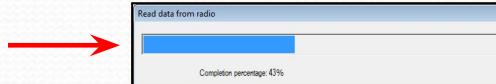
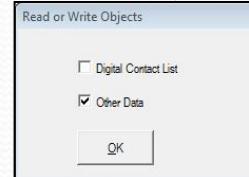
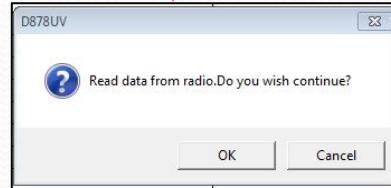


NOTE: Mine is usually COM12 but this will depend on your computer. You may want to try this with your radio off and note the com ports present. Then turn the radio on and do it again. The correct port should be the new one that showed up. You may need to install a driver.

Save your initial code plug:



1. In CPS, Click “Read From Radio”
2. Click, OK, and follow the dialogs



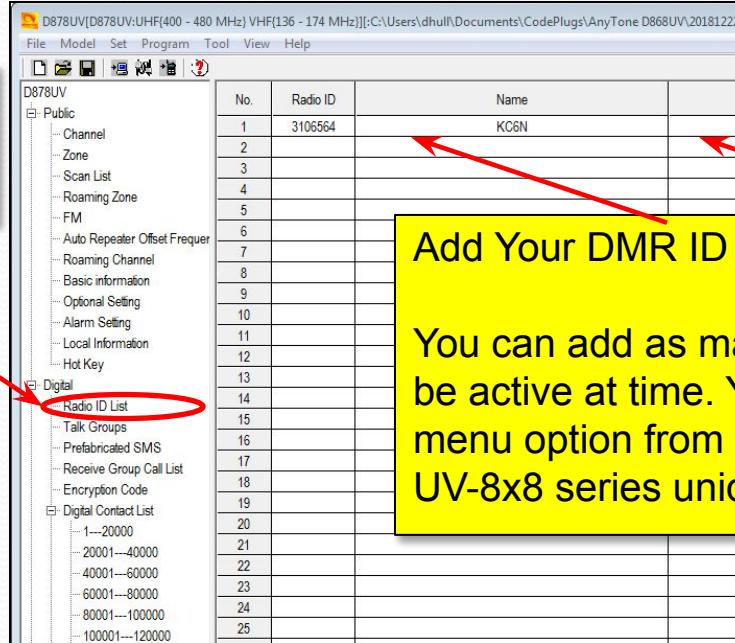
3. Click “File”, “Save As”, give it a name like “20190218_YourCall_AT-878_VirginCP”. Now you have a record of the un-programmed code plug for reference.

Load your new code plug

- Locate a code plug that you like
 - Download from a web site
 - From a friend's radio
 - Write from scratch
- The following pages show how to:
- 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

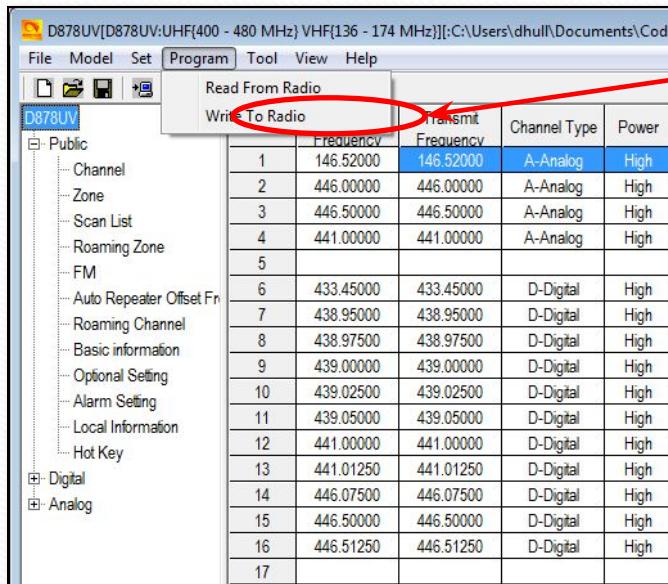


Add Your DMR ID and Call Sign to the list.

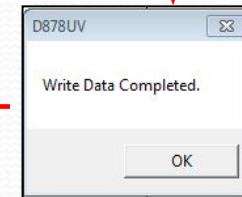
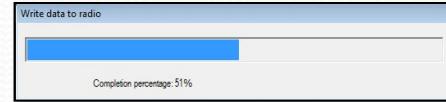
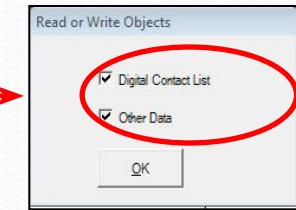
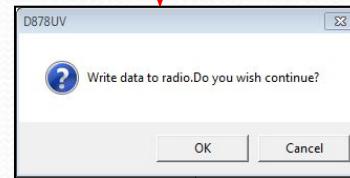
You can add as many as you like, but only one can be active at time. You will select which one via a menu option from the keypad. This is an AnyTone UV-8x8 series unique feature which is sort of nice.

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.

Band Error Issue

- At this point, you may run into the pop-up shown on the right below – not to worry.
- This simply means that the band plan your radio expects to see and the one your code plug was built for are not the same – This is easily fixable as shown on the next couple pages. If you don't get this error, you are good to go.

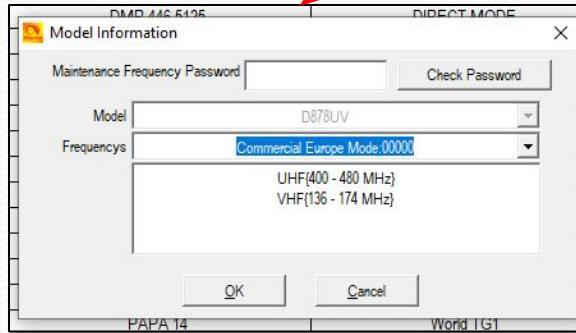


Read the Code Plug Mode

The screenshot shows the AnyTec D878UV software interface. The main window displays a table of frequencies and channel types. A red arrow points from the "Model" button in the menu bar to the "Model Information" dropdown in the "Model" tab of the software's sidebar.

No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width
1	146.52000	146.52000	A-Analog	High	25K
2	446.00000	446.00000	A-Analog	High	25K
3	446.50000	446.50000	A-Analog	High	25K
4	441.00000	441.00000	A-Analog	High	25K
5					
6	433.45000	433.45000	D-Digital	High	12.5K
7	438.95000	438.95000	D-Digital	High	12.5K
8	438.97500	438.97500	D-Digital	High	12.5K
9	439.00000	439.00000	D-Digital	High	12.5K
10	439.02500	439.02500	D-Digital	High	12.5K
11	439.05000	439.05000	D-Digital	High	12.5K
12	441.00000	441.00000	D-Digital	High	12.5K
13	441.01250	441.01250	D-Digital	High	12.5K
14	446.07500	446.07500	D-Digital	High	12.5K
15	446.50000	446.50000	D-Digital	High	12.5K
16	446.51250	446.51250	D-Digital	High	12.5K
17					
18	446.58000	441.58000	A-Analog	High	25K

Select “Model” and then select “Model Information” from the dropdown. To bring up the information panel shown below.



Make note of what it says in the second row in the “Frequencies” section. In this case it shows that this code plug expects to see a radio in the “Commercial Europe Mode: 00000”

The radio will need to be changed to match. See next page.

Set the radio to match

To change this in the radio you need to put the radio into “test” mode by holding down the “1” and the “PTT” key simultaneously while powering the radio on. If this doesn’t work for you, you will need to use the applet described next.

Continue holding the “PTT” and “1” down until you see the display “DV878UV Test Mode”. Release the keys and the screen to the right will display once the boot sequence completes.

Turn the channel select switch (top middle) until the proper mode is displayed. In this case the mode is **00000**. Yours may be different. Note that the last digit is blue for some reason.



Once these agree, you should be able to load the code plug.

Using The Applet

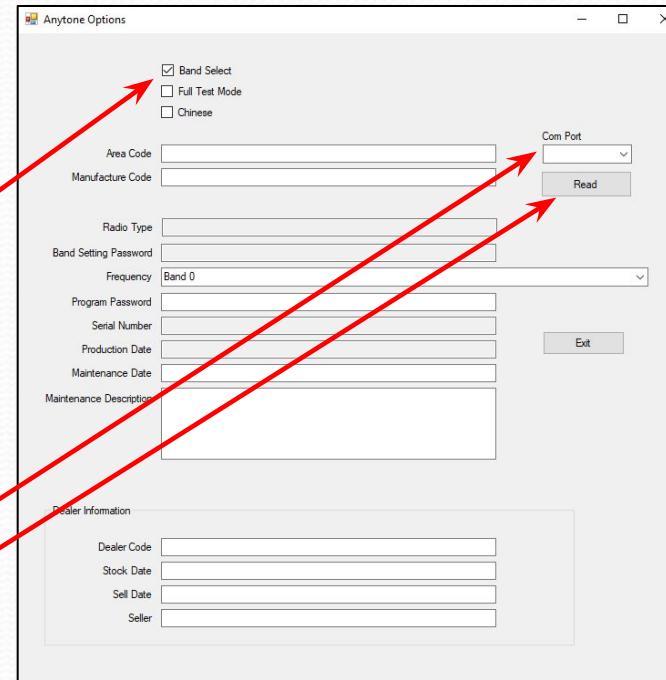
Alternative Method: It may be that in your radio, the test mode is not enabled, in which case there is a software application available from Anytone for this purpose called “At_Options.exe”:

To use this, run the application to get the screen in the adjacent image

Set band select mode

Select the correct COM Port using the “Com Port” drop down

Click “Read” to read the radio



Applet Link:

https://www.dropbox.com/sh/8lw64h82po80gd4/AAAHVJDJSG52z_GMGiK3hhBbXa?dl=1

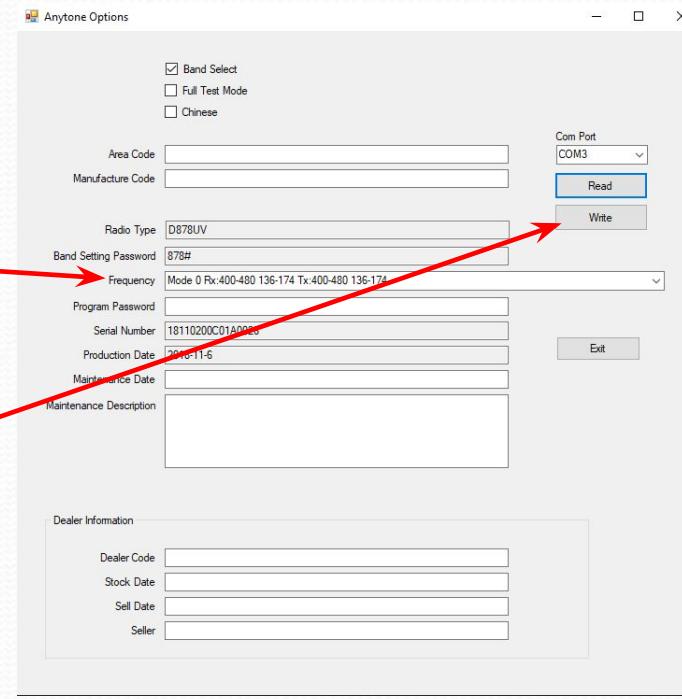
Band Error Issue (4)

The fields will now be populated with some information about the radio.

You are going to want to set the correct band and frequency ranges using the “Frequency” pull down. This needs to match the frequency “Mode” of the code plug.

Once you have selected the right Frequency mode click “Write” to write this data to the radio.

Click “Exit” and proceed to load your code plug.



You should be good to go

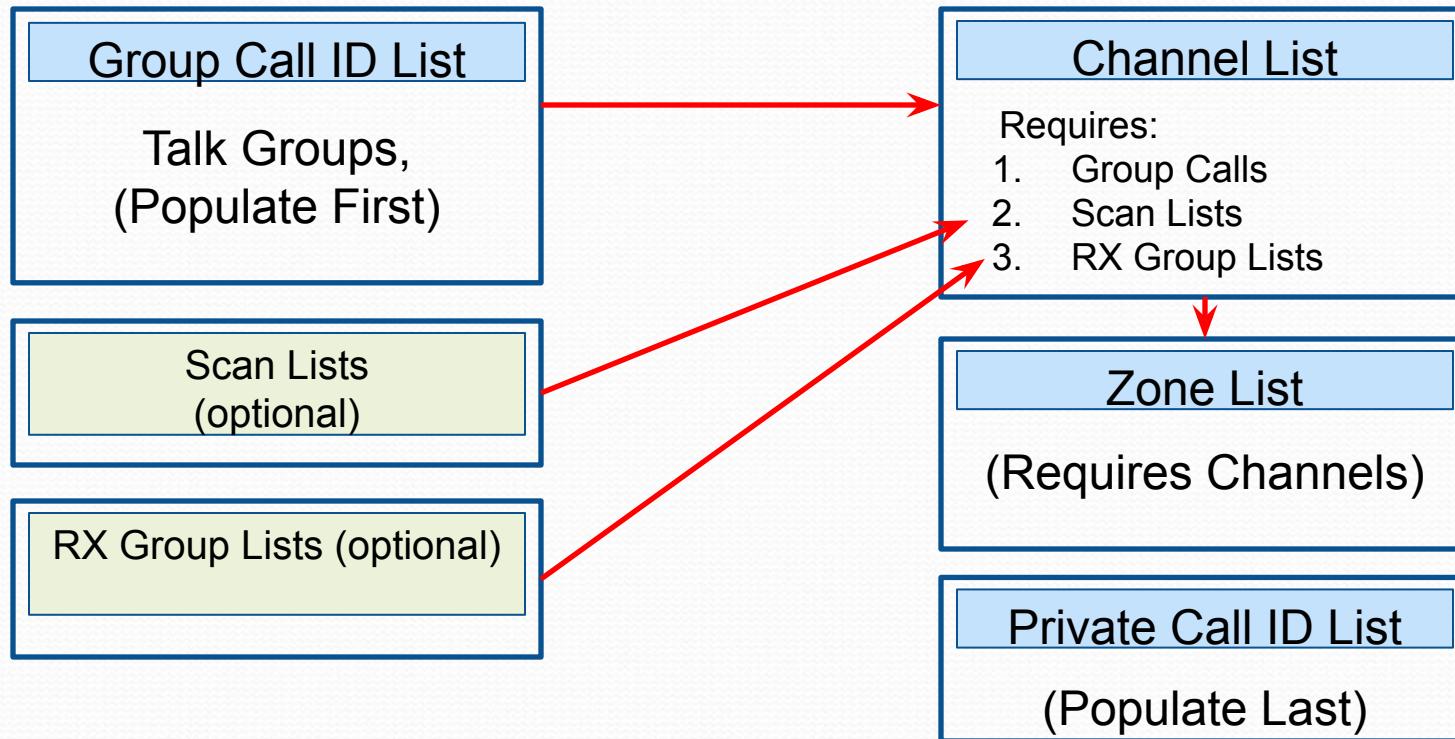
- Make sure your analog channels work
- Pop onto California (or other active talk group) and ask for a radio check.
- If you have loaded a pre-built code plug, then you are done – enjoy your radio!
- Here is the link to the applet again:
- https://www.dropbox.com/sh/8lw64h82po8ogd4/AAAHVDI SG52z_GMGiK3hhBbXa?dl=1

Break Marker

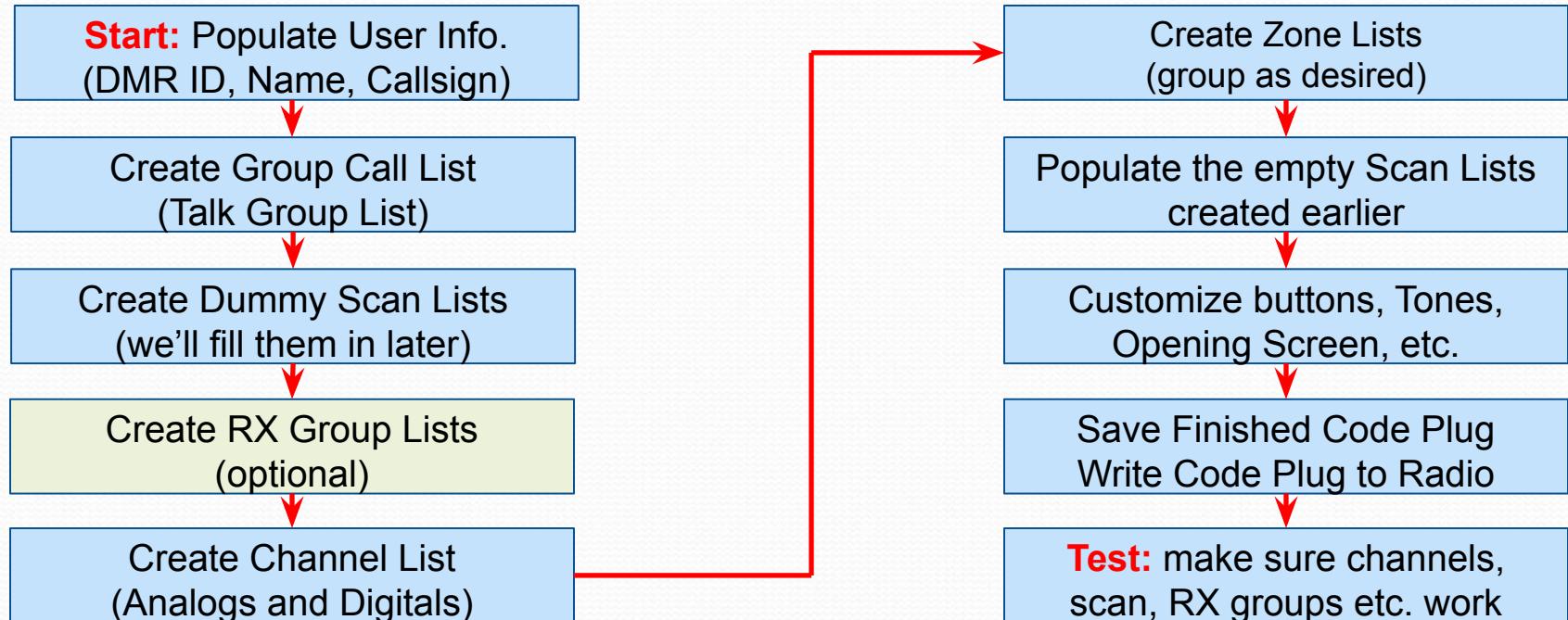
Part II

Code Plug management concepts

Database relationships

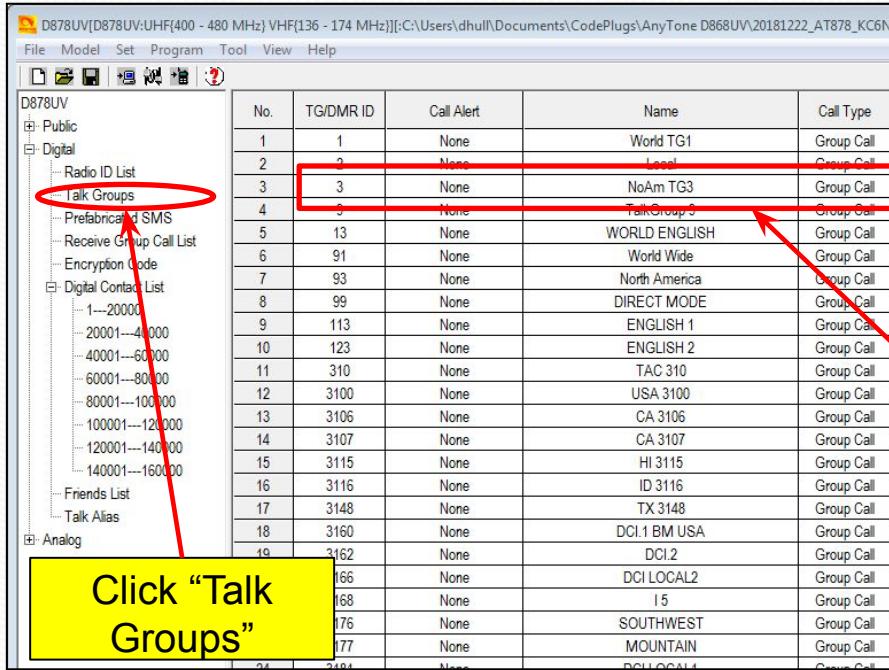


DMR Code Plug Workflow



AnyTone CPS opening Screen

Talk Groups(group call list):



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:

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 Freq
 - Roaming Channel
 - Basic information
 - Optional Setting
 - Alarm Setting
 - Local Information
 - Hot Key
- Digital
- Analog

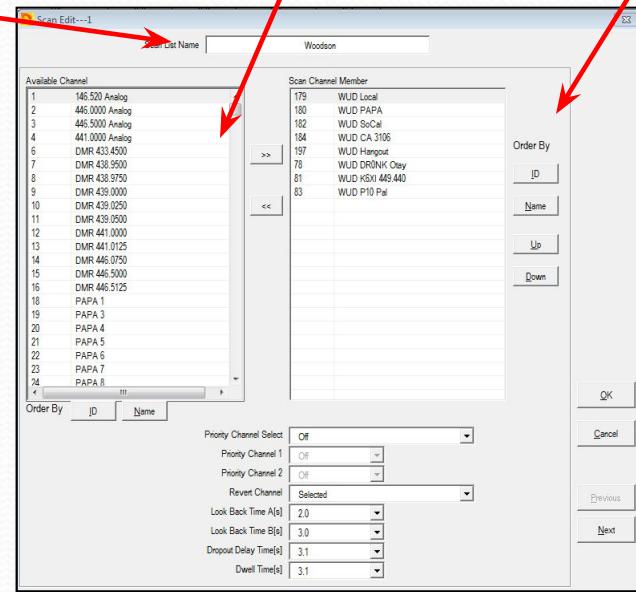
No.	Name	Channels	Priority Channel 1	Priority Channel 2	Look Back Time A[s]	Look Back Time B[s]	Dropout Delay Time[s]	Dwell Time[s]
1	Woodson	8	Off	Off	2.0	3.0	3.1	3.1
2	BlueBridge	4	Off	Off	2.0	3.0	3.1	3.1
3	Lukins	4	Off	Off	2.0	3.0	3.1	3.1
4	CatMt	4	Off	Off	2.0	3.0	3.1	3.1
5	Otay	4	Off	Off	2.0	3.0	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	TorPk	4	Off	Off	2.0	3.0	3.1	3.1

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).

Available Channels

Included in
Woodson
"Scan Group"



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.

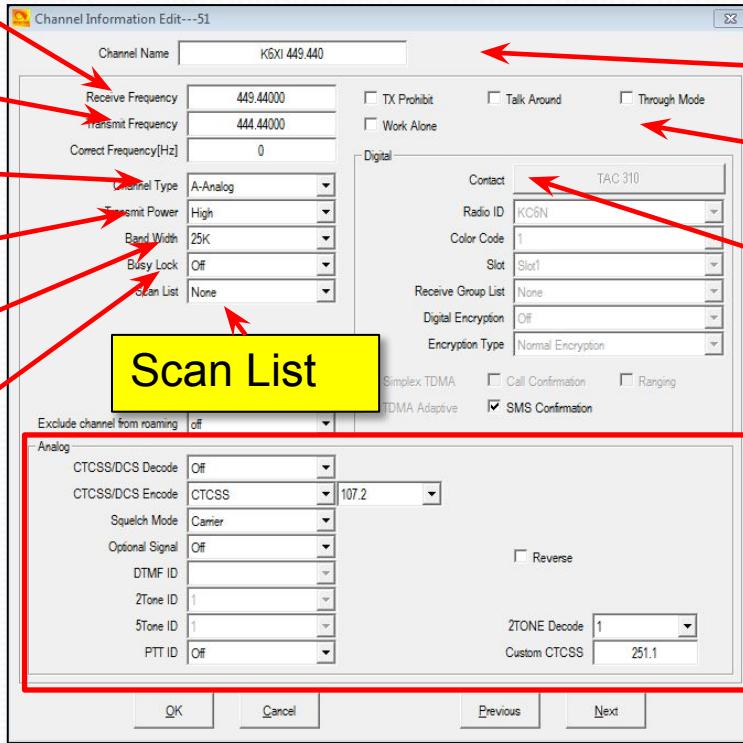
Click Channel

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	Other
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	
20	446.10000	440.10000	A-Analog	High	25K	107.0	107.0	SAY 1	World TG1	KC6N	

Analog Channel detail:

RX Frequency
TX Frequency
Channel Type
TX Power Level
Channel BW
Admit Criteria



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

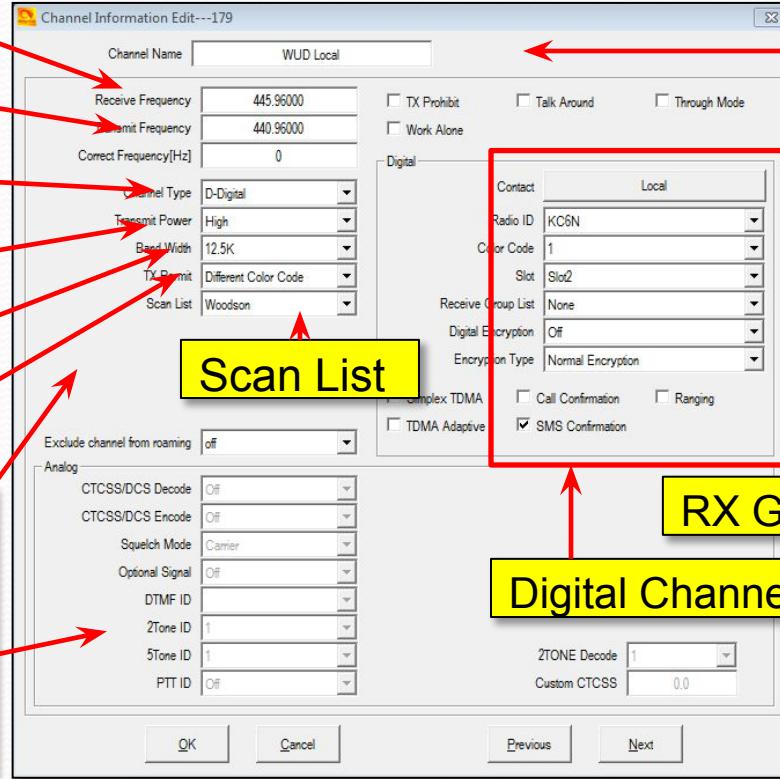
TX Power Level

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

Talk Around

TX Contact
(Talk Group)

DMR ID or User

Repeater Color
Code

Channel
Timeslot

Scan List

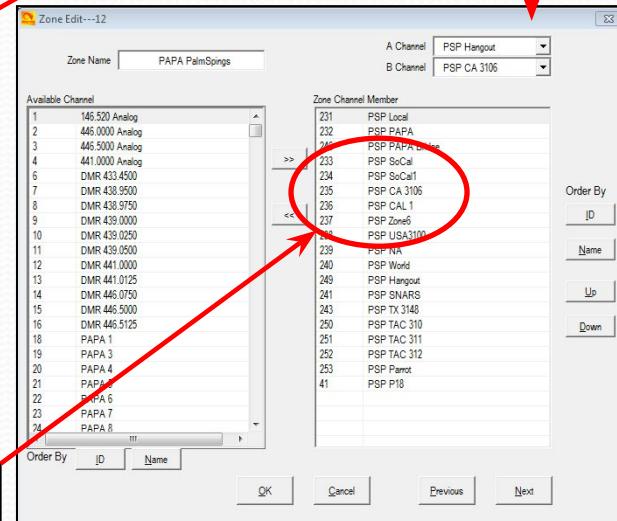
RX Group List

Digital Channel Info

Zones:

The screenshot shows the D878UV software interface. On the left, there is a tree view of configuration sections: Public, Channel, Zone (which is circled in red), Scan List, Roaming Zone, FM, Auto Repeater Offset Frequency, Roaming Channel, Basic Information, Optional Setting, Alarm Setting, Local Information, Hot Key, Digital, and Analog. To the right is a table listing zones. The columns are No., Name, Zone Channels, A Channel, and B Channel. The table contains 24 rows of data, such as Simplex (Zone 1, A: 146.520 Analog, B: 446.0000 Analog), Analog VHF (Zone 2, A: DRONK 147.990, B: SANDRA 146.640), and various PAPA zones like PAPA Analog (Zone 4, A: PAPA 10, B: PAPA 11) and PAPA PalmSprings (Zone 12, A: PSP Hangout, B: PSP CA 3106).

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”

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 Charon	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	Don Buckland	Cornwall	Private Call	VA3BQO	Ontario	Canada	DMR
11	1023008	None	Mark Robinson	Niagara Falls	Private Call	VE3JMR	Ontario	Canada	DMR
12	1023009	None	Rosendo Parko	Scarborough	Private Call	VA3PMW	Ontario	Canada	DMR
13	1023010	None	Roland Parko	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	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 Norma	Nestleton Stk	Private Call	VA3BTQ	Ontario	Canada	DMR

Typical “Private Call” entry.

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 screenshot shows the D878UV software interface. On the left is a tree view of settings: Public, Channel, Zone, Scan List, Roaming Zone, FM, Auto Repeater Offset Frequency, Roaming Channel, Basic Information, Optional Setting, Alarm Setting, Local Information, Hot Key, Digital, Radio ID List, Talk Groups (which is circled in red), Preferred SMS, Receive Group Call List, Encryption Code, and Digital Contact List (with entries 1---20000, 20001---40000, 40001---60000, 60001---80000, 80001---100000). The main area is a table with columns: No., TG/DMR ID, Call Alert, Name, and Call Type. A red arrow points from the 'Talk Groups' entry in the tree to the 'Name' column of the table, which contains 'Contact1'. The table has 25 rows.

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				
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22				
23				
24				
25				

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.

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

The dialog box is titled 'Talk Group Edit---1'. It contains four fields: 'Name' (Contact1), 'Call Type' (Group Call), 'TG/DMR ID' (12345678), and 'Call Alert' (None). At the bottom are 'OK', 'Cancel', 'Previous', and 'Next' buttons.

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	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
San Diego Hangout TG is
310014

Contacts (group Calls):

The screenshot shows the software interface for the AnyTone D888UV. On the left is a navigation tree with categories like Public, Digital, and Digital Contact List. Under Digital, 'Talk Groups' is highlighted with a red oval. The main window displays a table of contacts:

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				
26				

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

A context menu is overlaid on the software interface, showing options for managing contacts:

Name	Call Type
Contact1	Group Call
California	

Below the menu are keyboard shortcuts for each option:

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

Populate the Group Call List:

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

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				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

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

Talk Group Edit--5

WorldWide

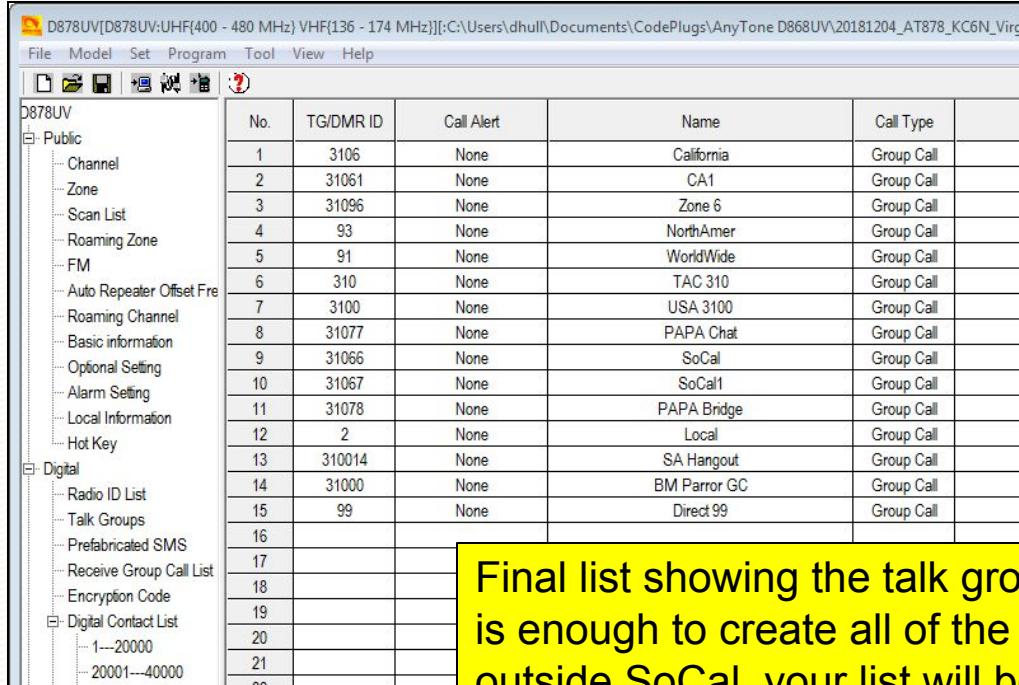
Group Call

91

None

Cancel Previous Next

Final Populated Group Call List:



The screenshot shows the AnyTone D868UV software interface. On the left is a tree view of configuration sections: D878UV, Public (Channel, Zone, Scan List, Roaming Zone, FM, Auto Repeater Offset Frequency, 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), and Digital Contact List (1--20000, 20001--40000). The main window displays a table of 21 talk groups. The columns are No., TG/DMR ID, Call Alert, Name, and Call Type. All entries are categorized as 'Group Call'.

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 Parrot 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.	TGIDMR ID	Call Alert	Name	City	Call Type	Repeater Number	State/Prov	Country
1	6034	None	Nigel	Nigel Utting	Private Call	GJ7LJJ	St Saviour	Jersey
2	44300	None	Andy	Andy	Private Call	GW1SYG	Desside	United Kingdom
3	1023001	None	Wayne	Wayne Edward	Private Call	VE3THW	Toronto	Ontario
4	1023002	None	Mathieu	Mathieu Goulet	Private Call	VA3ECM	Ottawa	Ontario
5	1023003	None	Guy	Guy Charon	Private Call	VE3QC	Gloucester	Ontario
6	1023004	None	Louella	Louella Noble	Private Call	VE3LDY	Little Current	Ontario
7	1023005	None	Jeffrey	Jeffrey Noble	Private Call	VE3JFN	Little Current	Ontario
8	1023006	None	Alan	Alan Harvey	Private Call	VA3UZ	Sparta	Ontario
9	1023007	None	Hans	Hans Bockhorst	Private Call	VA3BUC	Cornwall	Ontario
10	1023008	I						
11	1023009	I						
12	1023010	I						
13	1023013	I						
14	1023014	I						
15	1023015	I						
16	1023016	I						
17	1023017	I						
18	1023018	I						
19	1023019	I						
20	1023020	I						
21	1023021	I						
22	1023022	I						
23	1023023	I						
24	1023024	I						
25	1023025	I						
26	1023026	I						
27	1023027	I						
28	1023028	I						
29	1023029	None	Kevin	Kevin Bousquet	Private Call	VA3API	Burlington	Ontario
30	1023030	None	David	David Sangwin	Private Call	VA3NSC	Pont Perry	Ontario
31	1023031	None	Alexander	Alexander Blais	Private Call	VE3OZT	Kitchener	Ontario
32	1023032	None	Perry	Perry Rubin	Private Call	VA3PMR	Thornhill	Ontario
33	1023033	None	Tedd	Tedd Doda	Private Call	VE3TJD	Petersburg	Ontario
34	1023034	None	Andrew	Andrew Moss	Private Call	VE3YES	Caledon	Ontario
35	1023035	None	Paul	Paul Becker	Private Call	VE3KPB	Oshawa	Ontario
36	1023036	None	William	William Riddell	Private Call	VE3WFR	Kitchener	Ontario
37	1023037	None	Richard	Richard William	Private Call	VE3UOD	Cambridge	Ontario
38	1023038	None	Rejean	Rejean Potvin	Private Call	VA3RMP	Kapuskasing	Ontario
39	1023039	None	Michael	Michael Kosch	Private Call	VE3MMX	Shedden	Ontario
40	1023040	None	Kevin	Kevin Bousquet	Private Call	VA3API	Burlington	Ontario
41	1023041	None	George	George Baukham	Private Call	VA3GB	Guelph	Ontario
42	1023042	None	David	David Bell	Private Call	VE3CSB	Kitchener	Ontario
43	1023043	None	John	John Enns	Private Call	VE3BB	Kitchener	Ontario
44	1023044	None	Frederick	Frederick Hicks	Private Call	VE3MTS	Waterloo	Ontario
45	1023045	None	Ralph	Ralph Korchenek	Private Call	VE3EUK	Petersburg	Ontario

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)

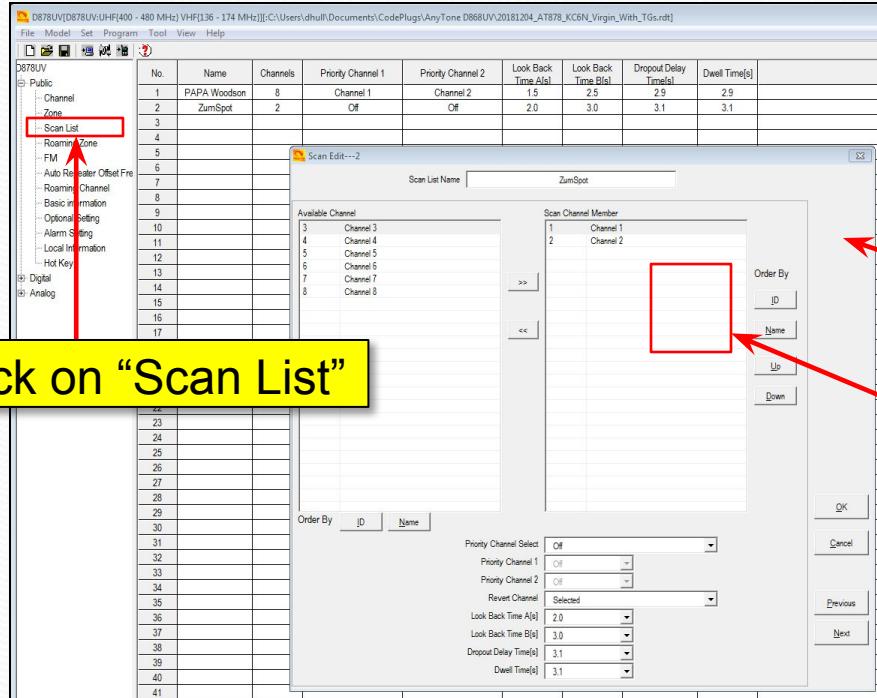
Adding Channels

- 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



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

The screenshot shows the AnyTone D868UV software interface. The title bar reads "D878UV[D878UV:UHF(400 - 480 MHz) VHF(136 - 174 MHz)][C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181204_AT878_KC6N_Virgin_With_TGs.rdt]". The menu bar includes File, Model, Set, Program, Tool, View, Help. The toolbar has icons for New, Open, Save, Print, and others. The left sidebar tree view shows "D878UV" expanded, with "Public" selected, revealing "Channel", "Zone", "Scan List", "Roaming Zone", "FM", "Auto Repeater Offset Fr", "Roaming Channel", "Basic information", "Optional Setting", "Alarm Setting", "Local Information", and "Hot Key". Below this are collapsed sections for "Digital" and "Analog". The main area contains a table with columns: No., Name, Channels, Priority Channel 1, Priority Channel 2, Look Back Time A[s], Look Back Time B[s], Dropout Delay Time[s], and Dwell Time[s]. The table has 16 rows, numbered 1 to 16. Rows 1 and 2 contain data: Row 1 has "PAPA Woodson" and "8" under "Name" and "Channels"; Row 2 has "ZumSpot" and "2". Rows 3 through 16 are empty.

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
EMCDM 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

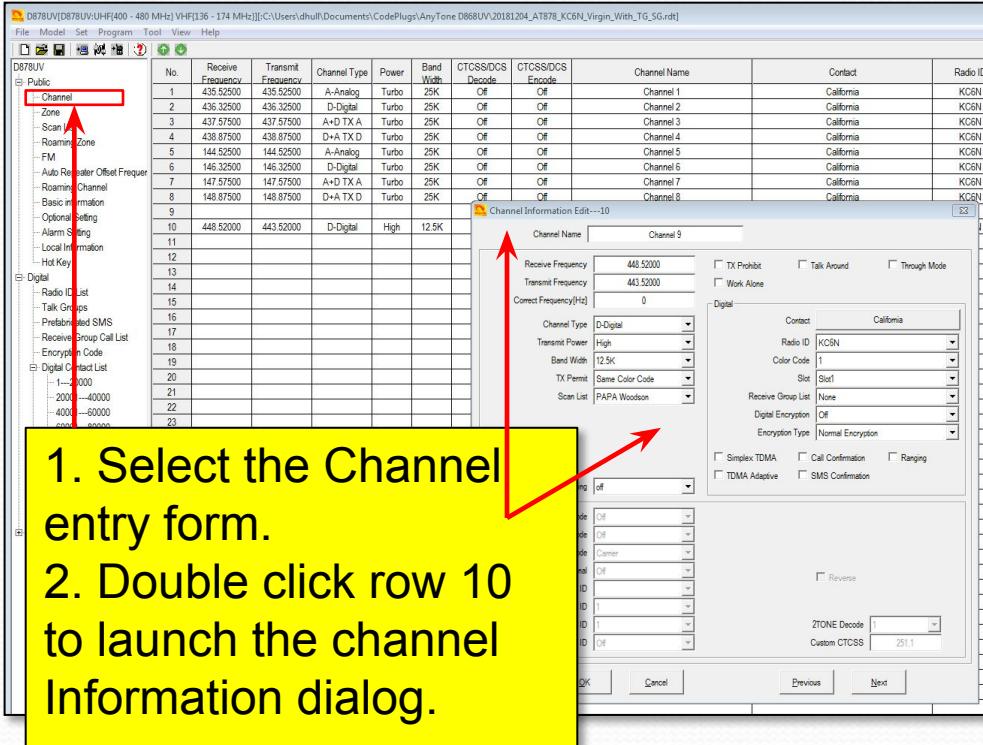
PAPA Woodson Channels

- 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	145.32500	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



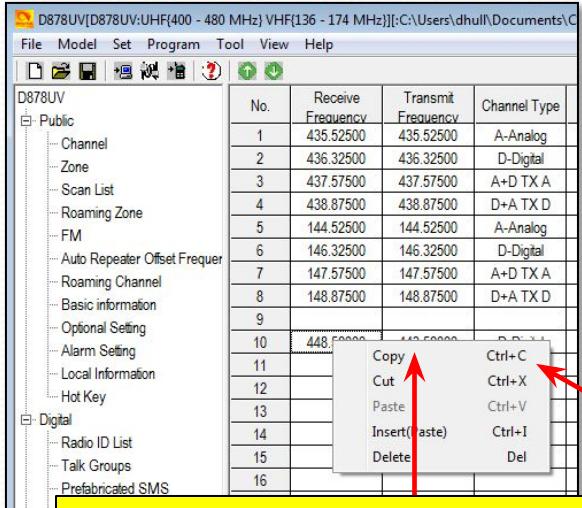
1. Select the Channel entry form.
2. Double click row 10 to launch the channel Information dialog.

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”

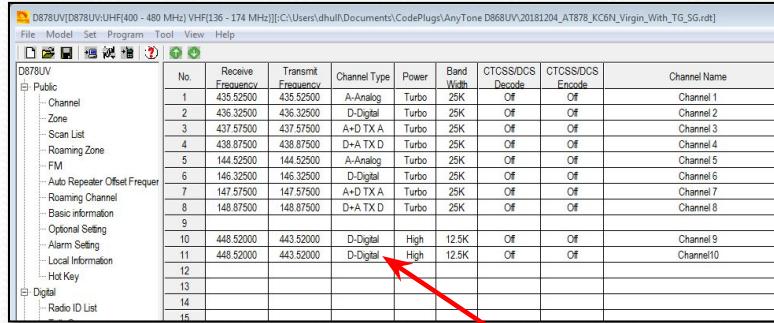
Replicate the Template

● 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	448.52000	
11			
12			
13			
14			
15			
16			

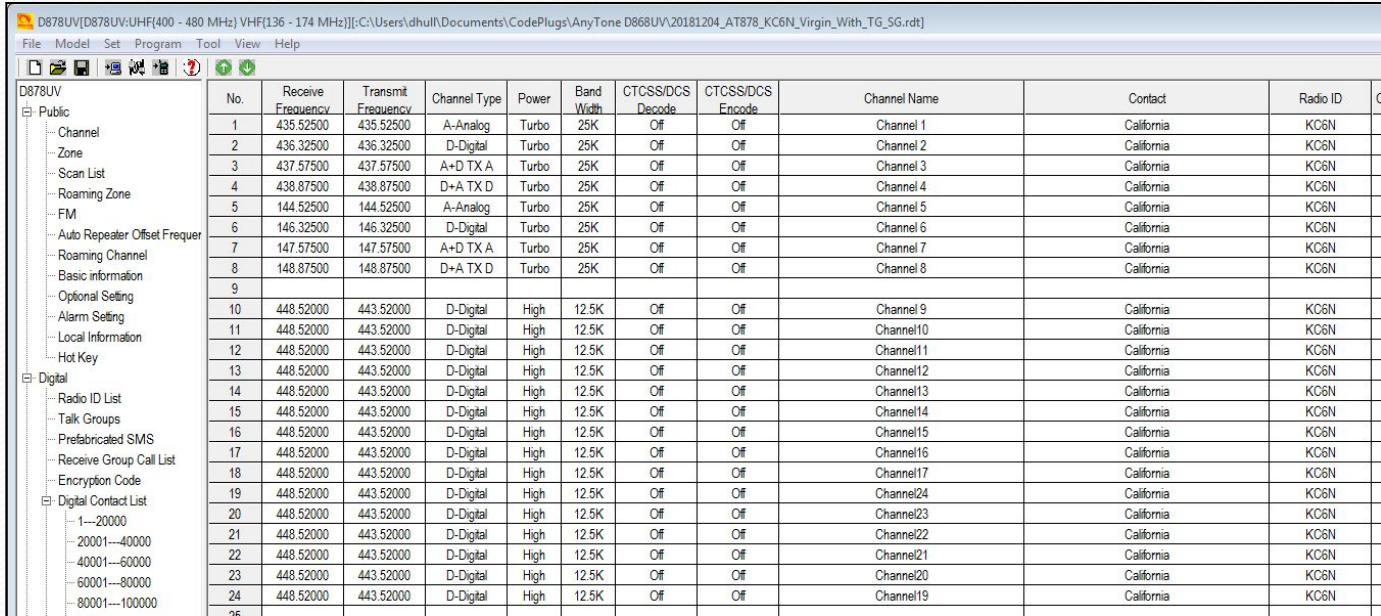
1. Right Click on “Row 10”
2. Select “Copy” from the pulldown



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	448.52000	D-Digital	High	12.5K	Off	Off	Channel 9
11	448.52000	448.52000	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.

Woodson CH Templates

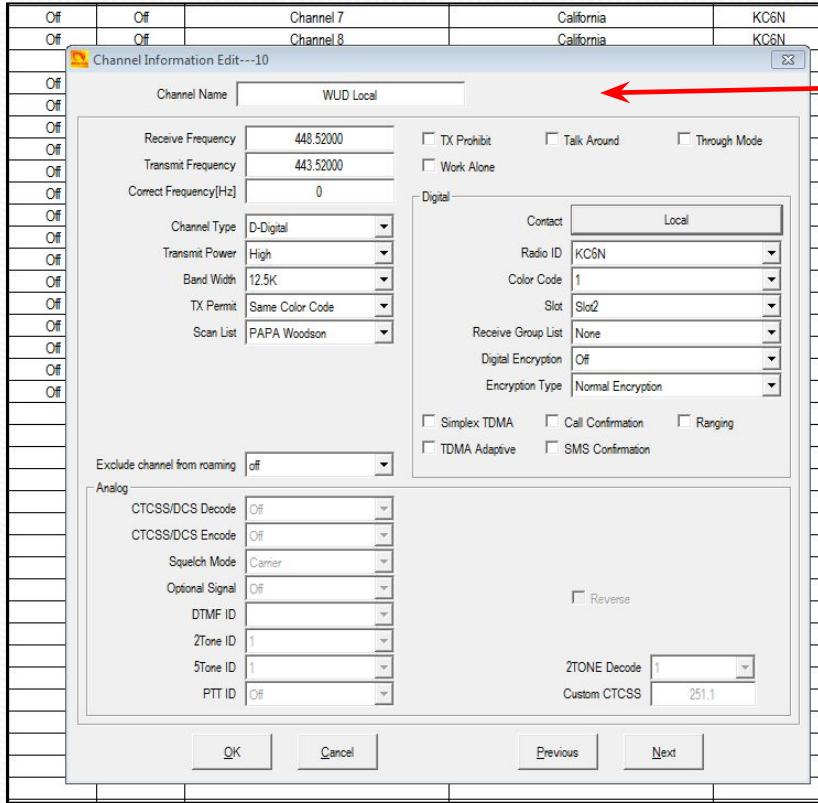


The screenshot shows the AnyTone D868UV software interface. The title bar reads "D878UV[D878UV:UHF(400 - 480 MHz) VHF(136 - 174 MHz)][C:\Users\dhull\Documents\CodePlugs\AnyTone D868UV\20181204_AT878_KC6N_Virgin_With_TG_5G.rdt]". The menu bar includes File, Model, Set, Program, Tool, View, Help. The left sidebar shows a tree view of the configuration: D878UV, Public, Channel, Zone, Scan List, Roaming Zone, FM, Auto Repeater Offset Freqer, 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, F, T, and Analog. The main table lists 25 channels with the following data:

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



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]

	No.	Receive Frequency	Transmit Frequency	Channel Type	Power	Band Width	CTCSS/DCS Decode	CTCSS/DCS Encode	Channel Name	Contact	Radio ID	Op
D878UV	1	435.52500	435.52500	A-Analog	Turbo	25K	Off	Off	Channel 1	California	KC6N	
Public	2	436.32500	436.32500	D-Digital	Turbo	25K	Off	Off	Channel 2	California	KC6N	
Channel	3	437.57500	437.57500	A+D TX A	Turbo	25K	Off	Off	Channel 3	California	KC6N	
Zone	4	438.87500	438.87500	D+A TX D	Turbo	25K	Off	Off	Channel 4	California	KC6N	
Scan List	5	144.52500	144.52500	A-Analog	Turbo	25K	Off	Off	Channel 5	California	KC6N	
Roaming Zone	6	146.32500	146.32500	D-Digital	Turbo	25K	Off	Off	Channel 6	California	KC6N	
FM	7	147.57500	147.57500	A+D TX A	Turbo	25K	Off	Off	Channel 7	California	KC6N	
Auto Repeater Offset Fr	8	148.87500	148.87500	D+A TX D	Turbo	25K	Off	Off	Channel 8	California	KC6N	
Roaming Channel	9											
Basic information	10	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD Local	Local	KC6N	
Optional Setting	11	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD SoCal	SoCal	KC6N	
Alarm Setting	12	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD SoCal 1	SoCal1	KC6N	
Local Information	13	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	PAPA Bridge	PAPA Bridge	KC6N	
Hot Key	14	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	PAPA Chat	PAPA Chat	KC6N	
Digital	15	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD California	California	KC6N	
Radio ID List	16	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD CAL 1	CA1	KC6N	
Talk Groups	17	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD Zone 6	Zone 6	KC6N	
Prefabricated SMS	18	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD USA	USA 3100	KC6N	
Receive Group Call List	19	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD NoAmer	NorthAmer	KC6N	
Encryption Code	20	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD WorldWide	WorldWide	KC6N	
Digital Contact List	21	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD TAC 310	TAC 310	KC6N	
...1--20000	22	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD Parrot GC	BM Parrot GC	KC6N	
20001--40000	23	448.52000	443.52000	D-Digital	High	12.5K	Off	Off	WUD SD Hangout	SA Hangout	KC6N	
40001--60000	24											
60001--80000	25											
80001--100000												

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)]|C:\Users\dhulf\Documents\CodePlugs\AnyTone D868UV\20181204_AT878_KC6N_Virgin_With_TG_5G.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	Channel Information Edit -->25		
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										

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

Exclude channel from roaming off

CTCSS/DCS Decode CTCSS

CTCSS/DCS Encode 100.0

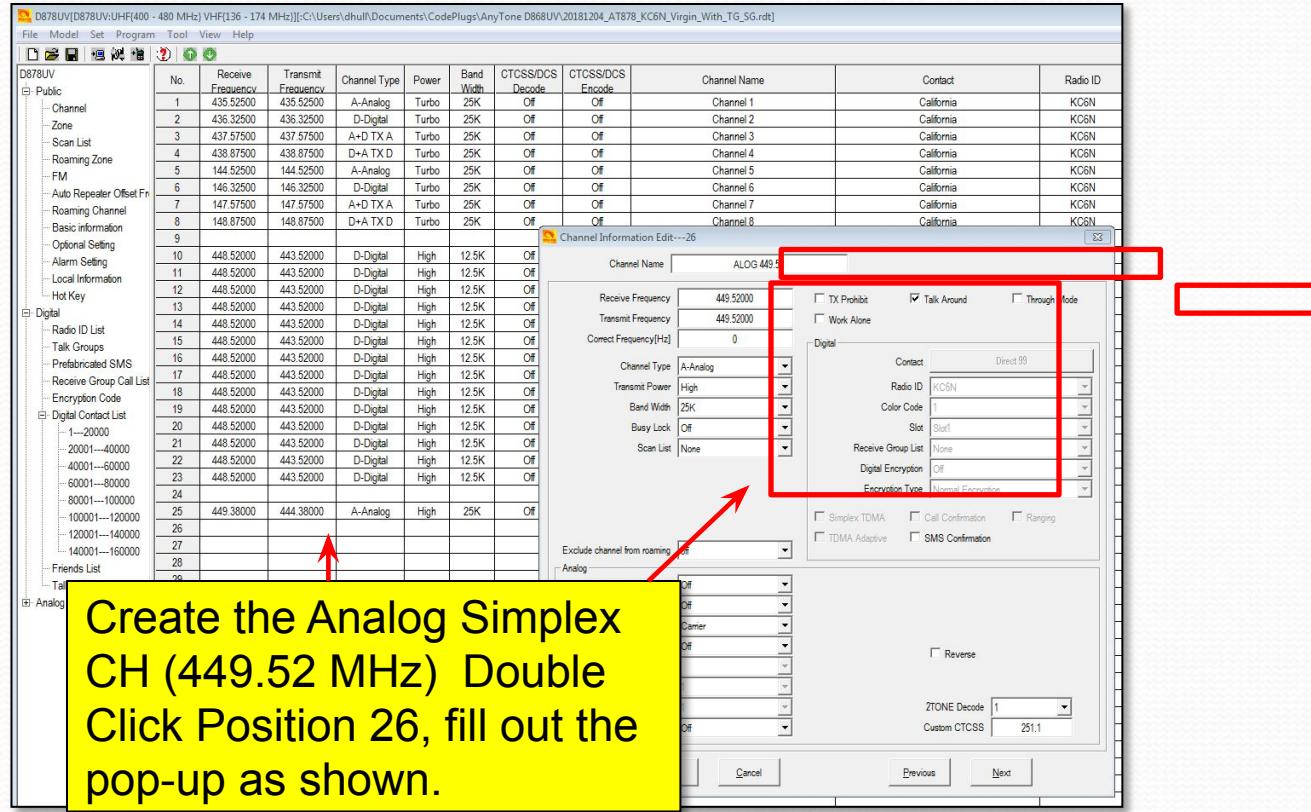
Reverse

2TONE Decode 1

Custom CTCSS 251.1

Cancel Previous Next

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

The screenshot shows the AnyTone D868UV software interface. On the left, a tree view lists various radio configurations like Public, Channel, Zone, Scan List, Roaming Zone, FM, Auto Repeater Offset Fr, Roaming Channel, Basic Information, Optional Setting, Alarm Setting, Local Information, and Hot Key. The main area displays a table of channels, with row 27 selected. A red arrow points from a yellow callout box at the bottom left to the selected row. Another red arrow points from the yellow box to a pop-up window titled "Channel Information Edit---27". The pop-up window contains fields for Channel Name (set to "Channel 9"), Receive Frequency (441.12500), Transmit Frequency (441.12500), and Correct Frequency(Hz) (0). It also includes dropdown menus for Channel Type (D-Digital), Transmit Power (High), Band Width (12.5K), TX Permit (Always), and Scan List (None). To the right of these are checkboxes for TX Prohibit, Talk Around, Through Mode, Work Alone, and several other options like Contact (Direct 99), Radio ID (KC6N), Color Code (1), Slot (Slot1), Receive Group List (None), Digital Encryption (Off), and various TDMA and SMS settings. At the bottom of the pop-up are "Cancel", "Previous", and "Next" buttons.

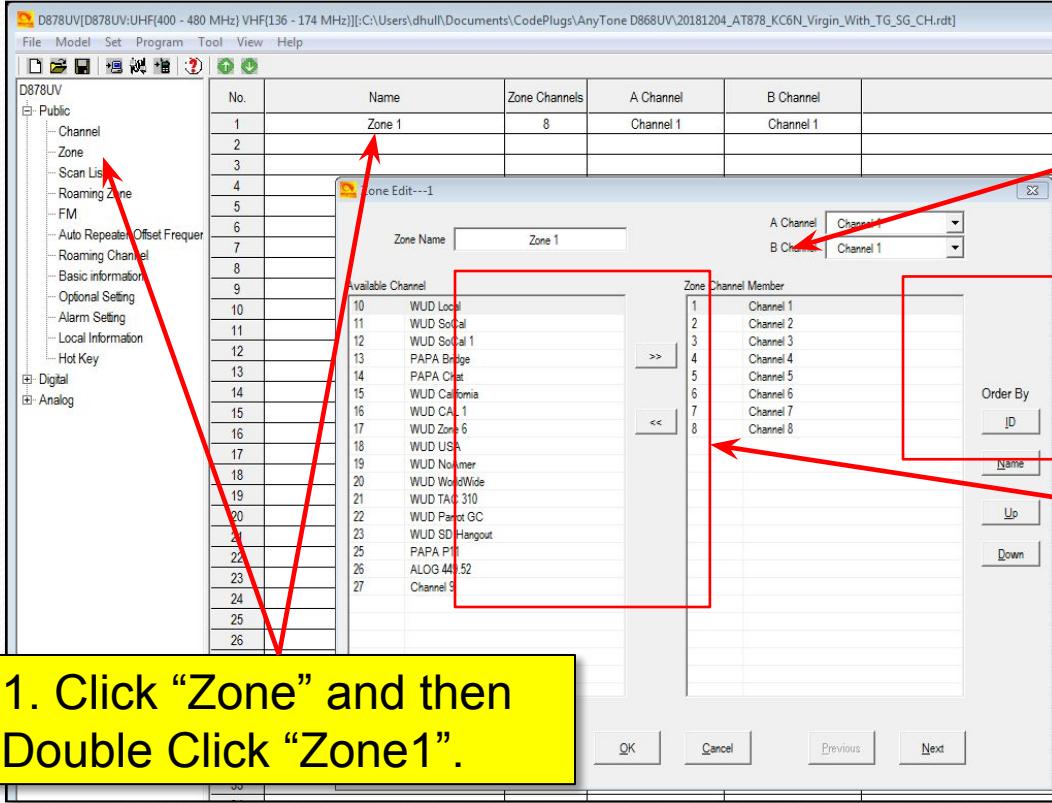
Create a DMR Simplex Channel (441.125 MHz):
Double Click Pos 27, fill out the pop-up as shown.

AT D878 CodePlug 101

Part IIIc

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

Create Woodson Zone



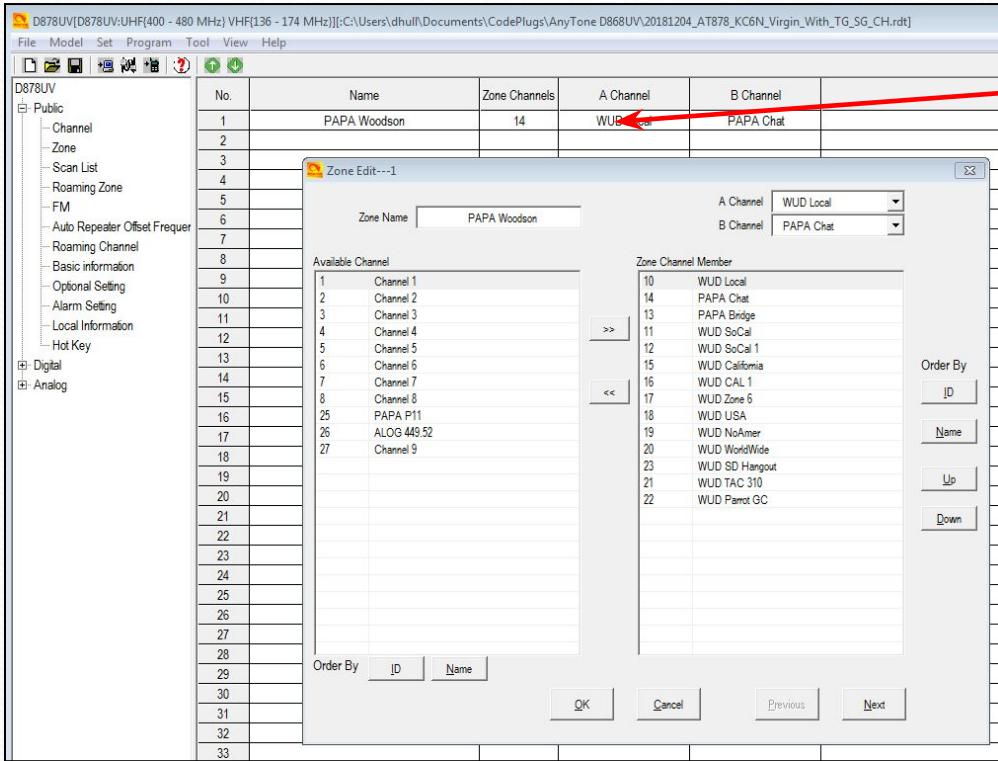
1. Click “Zone” and then Double Click “Zone1”.

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.

Final Woodson Zone



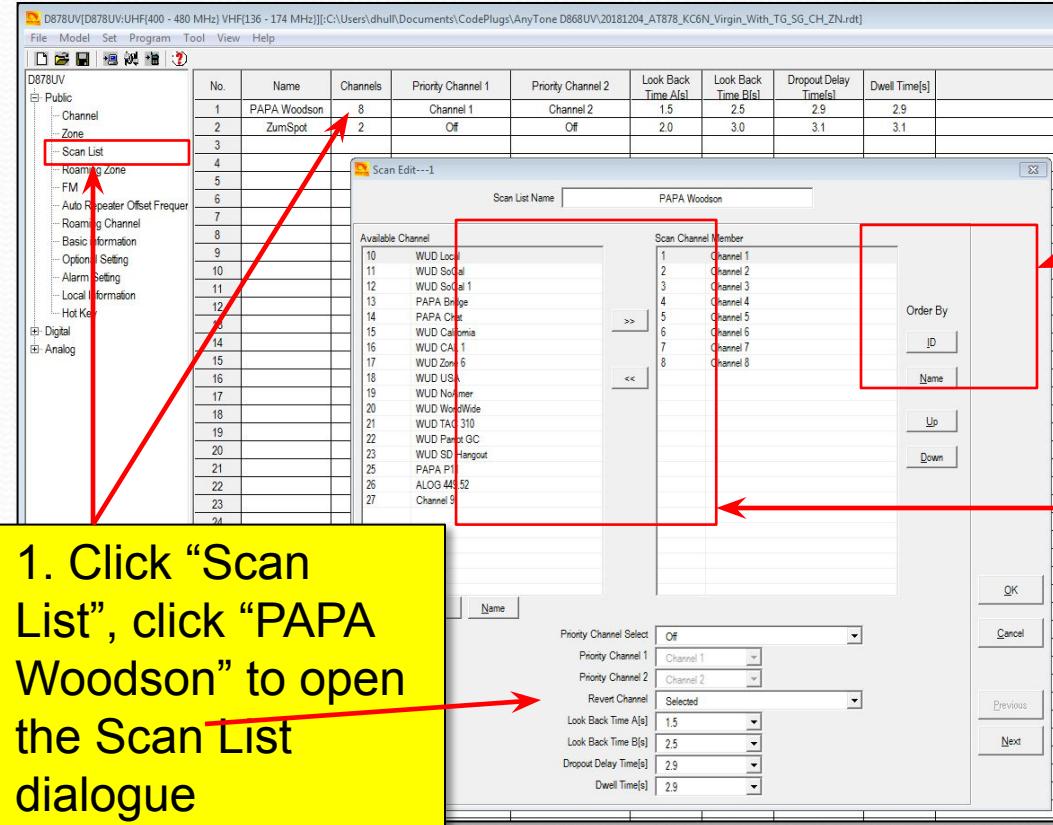
PAPA Woodson Zone

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

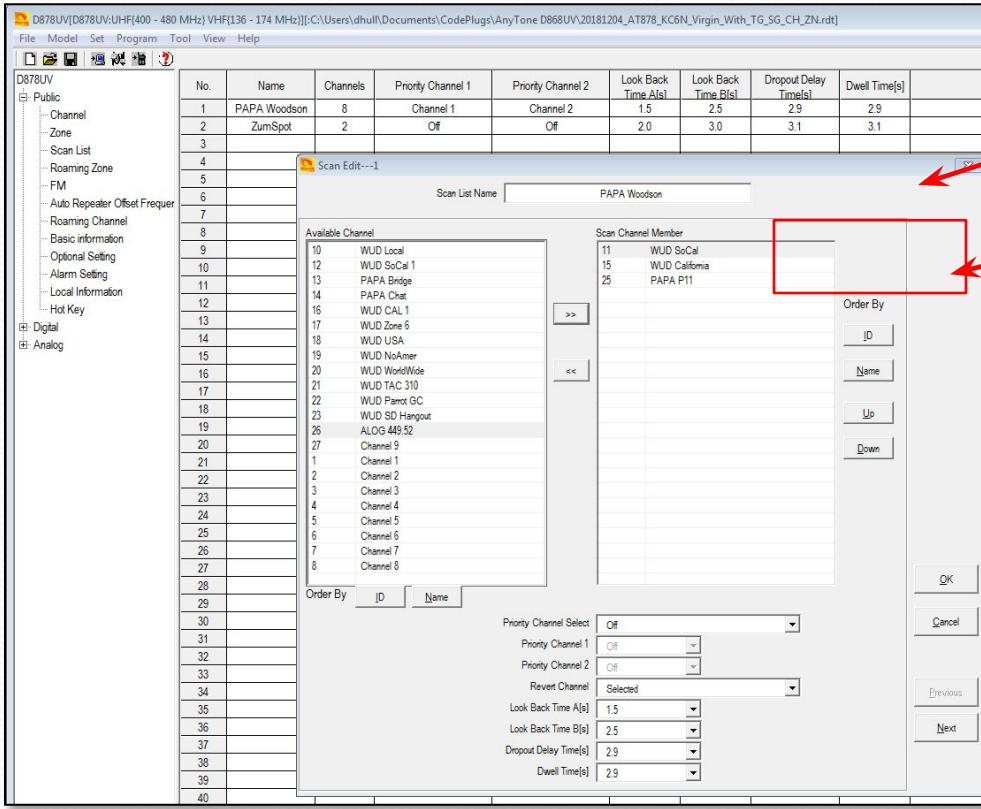
Create Woodson Scan List



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



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

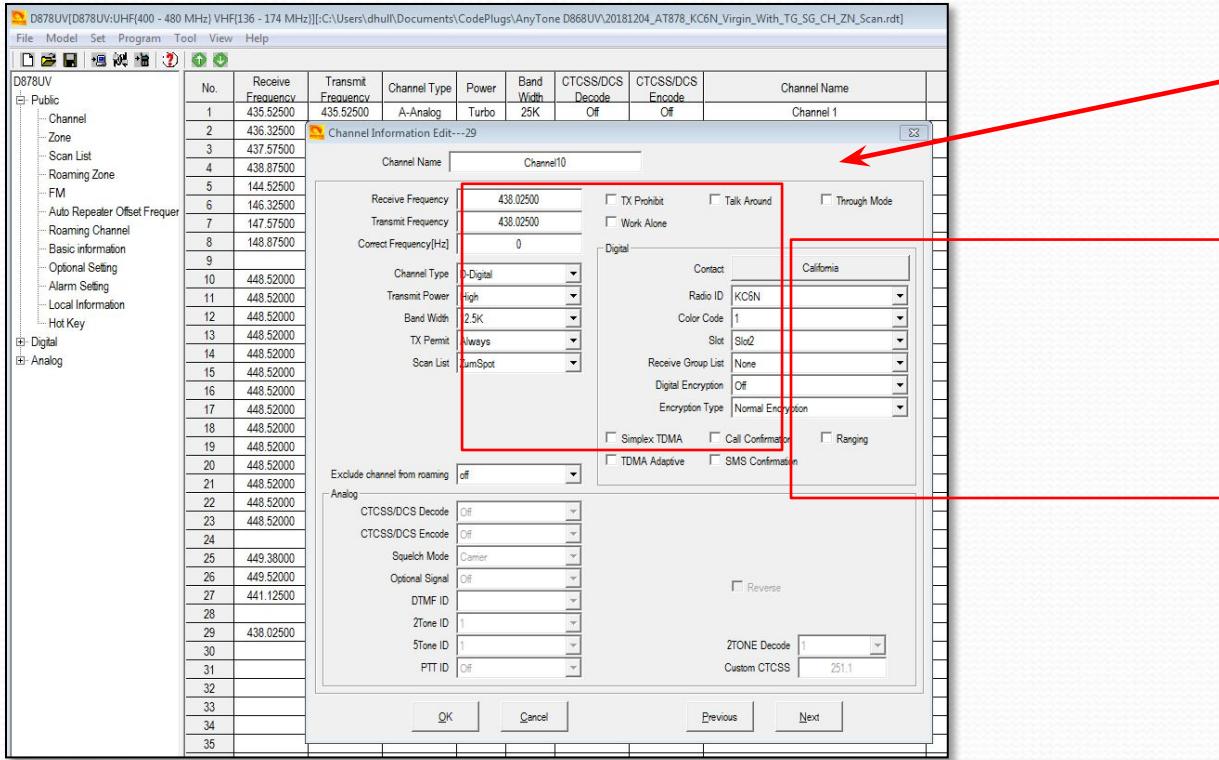
Code Plug management Concepts

(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

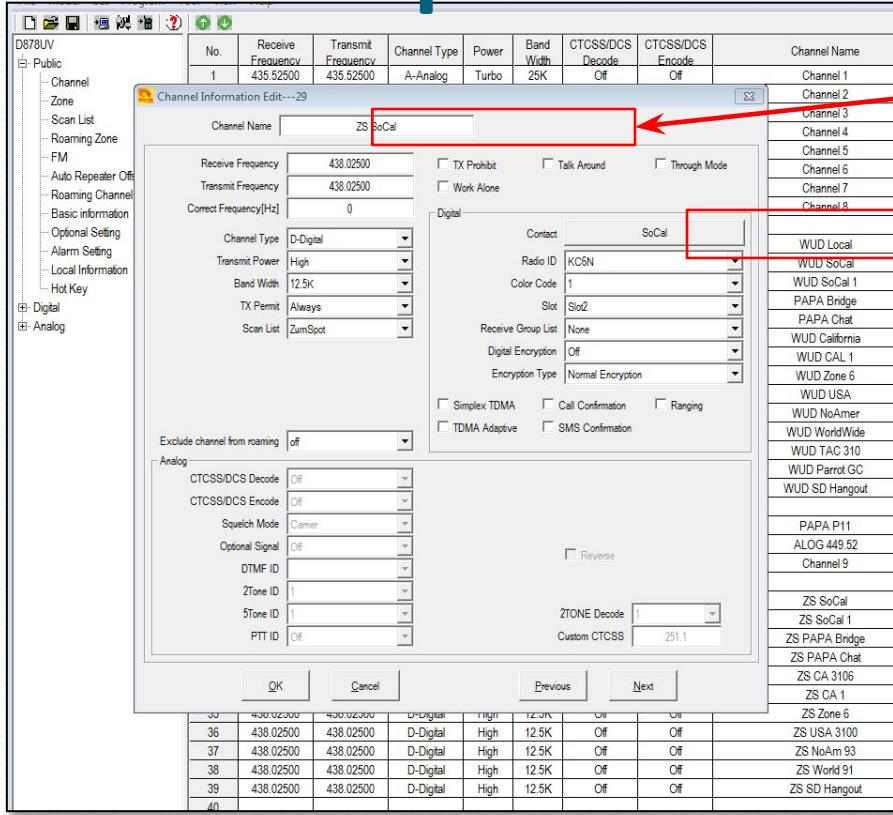
HotSpot CH Template



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

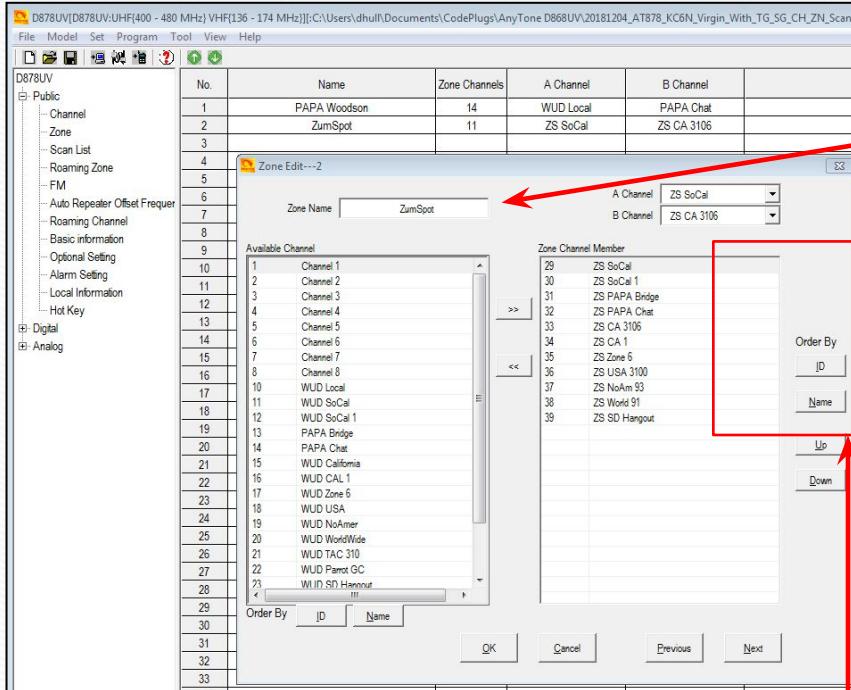
HotSpot SoCal Channel



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



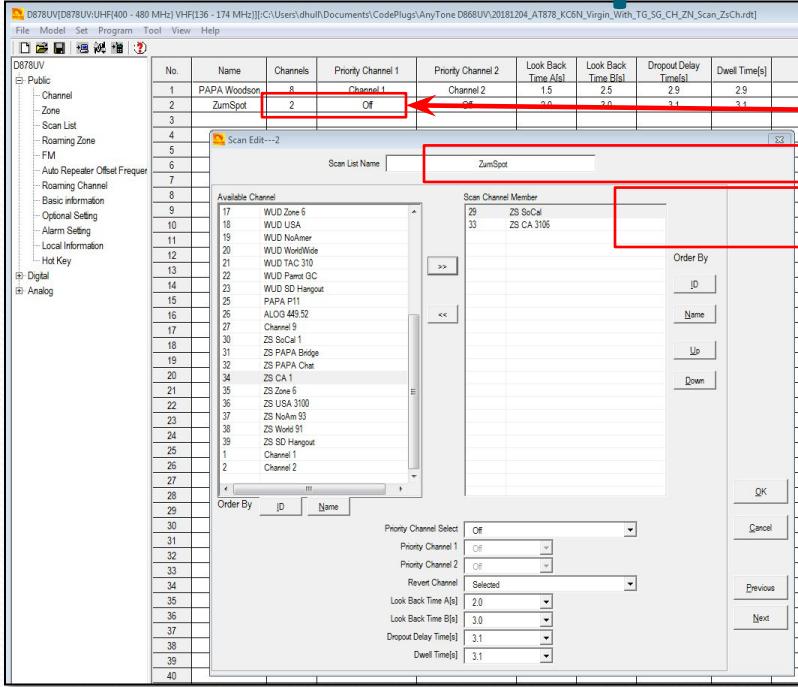
Zone Name: “ZumSpot”
appears here

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 D878 CodePlug 101

Part IIIe
Code Plug management Concepts
(Contact List Maintenance)

(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.

(2)

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

Go to: <http://amateururradio.digital/#wizard>

The screenshot shows the 'Digital Contacts Wizard' interface. At the top, there's a navigation bar with links like File, Edit, View, Favorites, Tools, Help, and a search bar. Below it is a toolbar with various icons. The main content area has a title 'Digital Contacts Wizard' and a progress bar with four steps: 1. Select radio (highlighted with a red box), 2. customize, 3. download, and finished. Step 1 is titled 'Select Radio' and lists several radio models: AnyTone AT-D868UV, AnyTone AT-D878UV, Allunce HD1, Btech DMR-6X2, Connect Systems CS800, Connect Systems CS800D, Radioddity GD-77, Retevis RT3S, Retevis RT82, Retevis RT90, Tera TR-7400, TYT MD-380/390, TYT MD-2017 & UV380/390, TYT MD-9600, Generic (RAW), DMRX c-Bridge, NOGSG DMR Contact Manager. A red arrow points to the 'Select radio' button. To the right, there's a note about popular radios and CSV files, followed by sections for 'Specific' (with preview and download buttons for AnyTone AT-D868UV and AnyTone AT-D878UV), 'Default Display - FW 2.21' (with download buttons), 'Default Display - FW 2.25+' (with download buttons), and 'Callsign Large (in Name Field) FW 2.21' (with download buttons). At the bottom, there's a section for 'RAW CSV:' with a 'Generic CSV' link and a 'Download Contact List - RAW format' button. A red box highlights the 'RAW CSV:' section. A red arrow points from the 'RAW CSV:' section to a yellow box containing the second option. A red arrow also points from the 'Select Radio' section to the same yellow box.

Proud to be working with the following Digital Radio manufacturers to offer you the best integration possible.

TYT
AnyTone
Retevis
Radioddity

Connect Systems
Hytera
Allunce
Motorola

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.

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

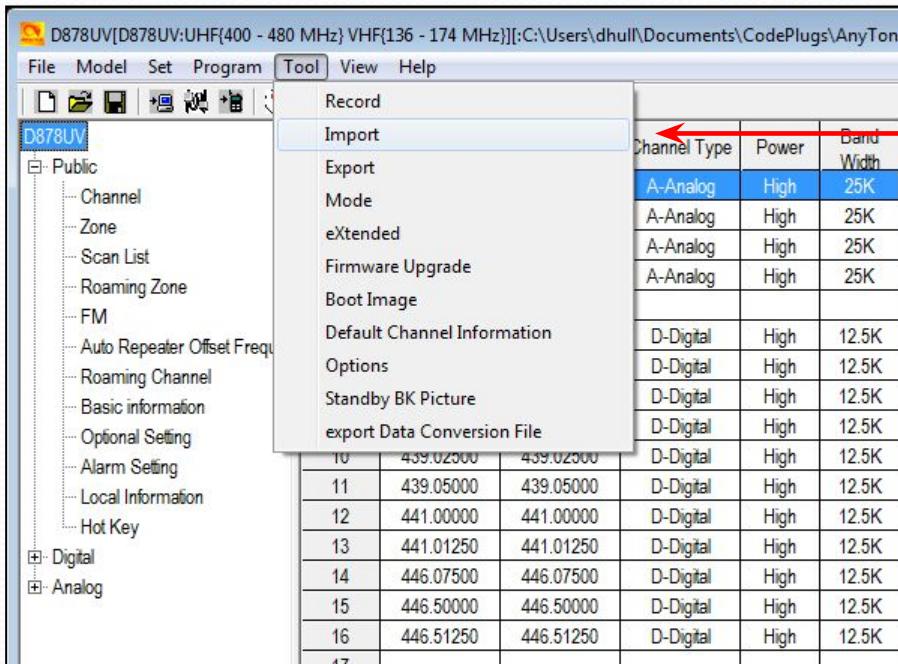
Each day we automatically generate a new worldwide digital contact list compatible with the Anytone AT-D868UV and AT-D878UV handheld radios. Click on a link below to download a zip file that contains a CSV file ready for import to your radio. Please note that the newest available file is at the top.

	# DMR IDs	# Unique Callsigns	# Countries
060901	122872	104963	162
060901	122781	104895	162
060901	122676	104805	162
060901	122578	104727	162
2019-02-13 060901	122455	104615	162

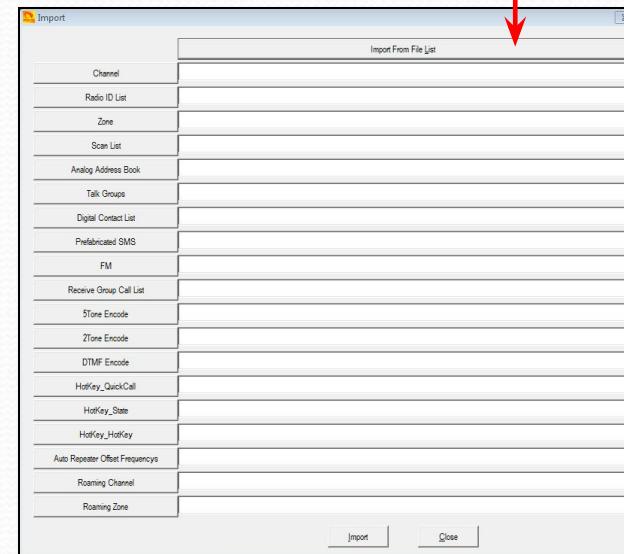
contacts_20190214060901.zip ← Newest
contacts_20190213060901.zip
contacts_20190212060901.zip
contacts_20190211060901.zip
contacts_20190210060901.zip

Select the newest file here, download and unzip.

(3)

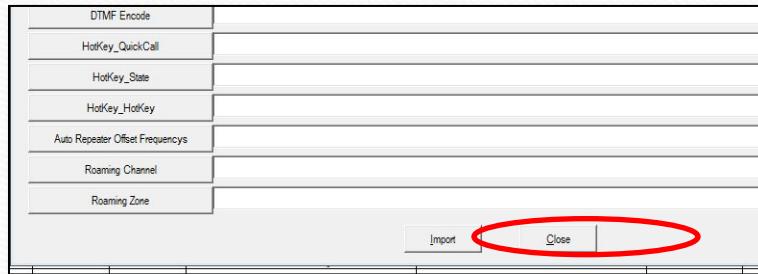
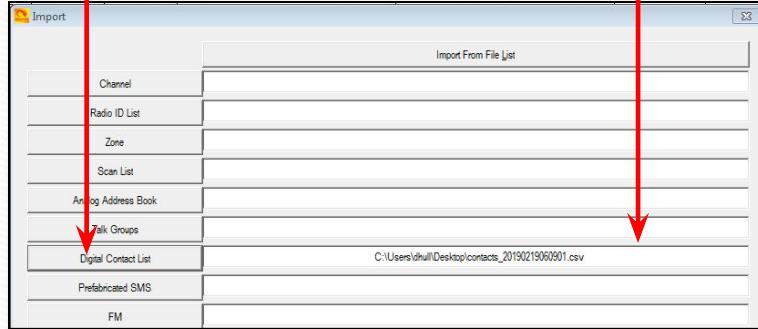


From the “Tools” drop-down, select “Import” to bring up the “Import” dialog.

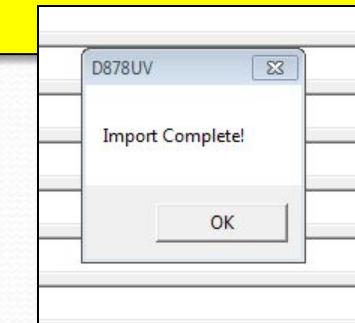


(4)

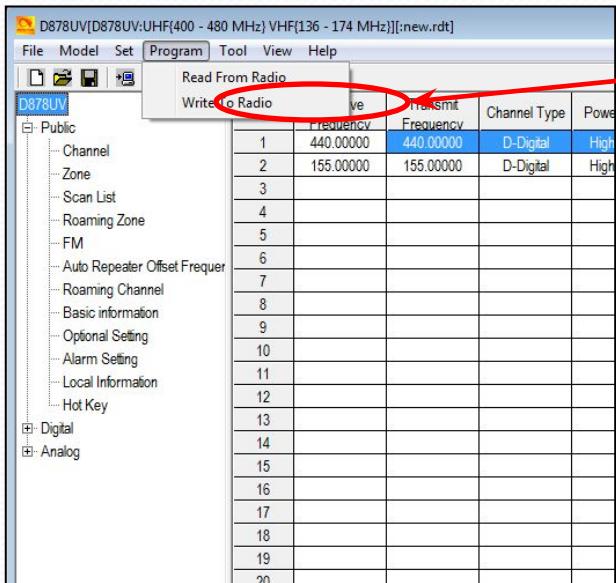
Click “Digital Contact List” and navigate to the newly created CSV file. It should have a name something like: “contacts_20190219060901.csv”



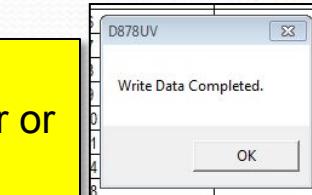
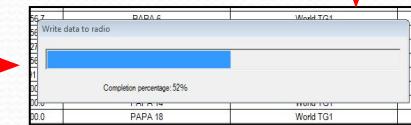
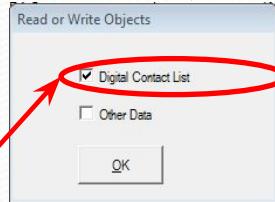
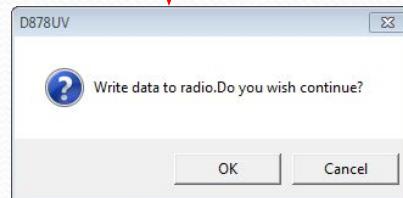
Click the “Import” button at the bottom of the dialog box. And wait for the “Import Complete” pop-up. At which point you are done. You can check the contacts section in the cps to make sure that they are there, if you like. Save your code plug.



(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 D878 CodePlug 101

Part IV
Code Plug management Concepts
(Setting up Roaming)

Setting up Roaming

- Identify your roaming area and determine the repeaters you want to roam over
 - Create channels for those repeaters
 - Collect those channels into a roaming zone for that area
- In “Options Settings”, select the “Auto Repeater” tab to configure roaming.
- Your radio will automatically find a usable repeater for you if one is in range.

A word about roaming

- You can have multiple roaming “zones”
- This allows you to implement profiles to support different roaming scenarios.
- For example: you can have a profile for coastal California, another for central California, another for local, etc, etc.
- Here we'll make a single zone for the PAPA system. But you can create as many roaming zones as you need.

Set up Roaming Channels

D878UV [D878UV:UHF(400 - 480 MHz) VHF(136 - 174 MHz)][C:\Users\dhull\Documents\CodePlugs\AnyTone D878UV\20190225_AT878_KC6N.rdt]

File Model Set Program Tool View Help

D878UV

- Public
 - Channel
 - Zone
 - Scan List
 - Roaming Zone
 - FM
 - Auto Repeater Offset Frequency
 - Roaming Channel**
 - Basic Information
 - Optional Setting
 - Alarm Setting
 - Local Information
 - Hot Key
 - APRS
- Digital
- Analog

No.	Receive Frequency	Transmit Frequency	Color Code	Slot	Name
1	449.74000	444.74000	7	No Use	Roam BLU
2	449.38000	444.38000	1	No Use	Roam LUK
3	447.26000	442.26000	1	No Use	Roam OAT
4	447.26000	442.26000	3	No Use	Roam OTY
5	445.86000	440.86000	1	No Use	Roam PAL
6	446.58000	441.58000	1	No Use	Roam PSP
7	446.08000	441.08000	1	No Use	Roam SDL
8	445.88000	440.88000	3	No Use	Roam SMP
9	446.82000	441.82000	1	No Use	Roam STG
10	449.36000	444.36000	1	No Use	Roam SUN
11	446.98000	441.98000	1	No Use	Roam SYZ
12	447.26000	442.26000	5	No Use	Roam TOR
13	447.30000	442.30000	1	No Use	Roam VST
14	445.96000	440.96000	1	No Use	Roam WUD
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Roaming Channel Edit---7

Receive Frequency: 446.08000
Transmit Frequency: 441.08000
Name: Roam SDL
Color Code: 1
Slot: No Use

Previous Next OK Cancel

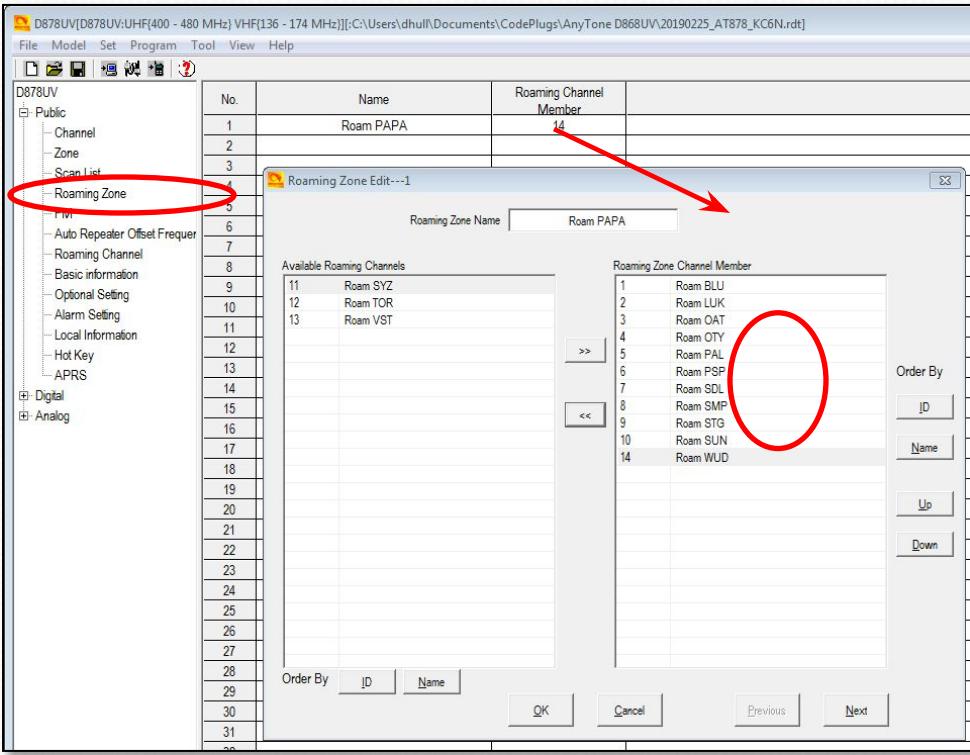
Set up your roaming channels as shown on the left. You will enter the Frequencies, Color Code and Time Slot for a block of repeaters that you want to roam over. Here I have set up the entire PAPA network.

Double click an entry row to bring up the entry dialog.

Note: Setting “Slot” to “No Use” tells the radio to use the slot of the currently selected channel.

Right click any row for the usual management pop-up.

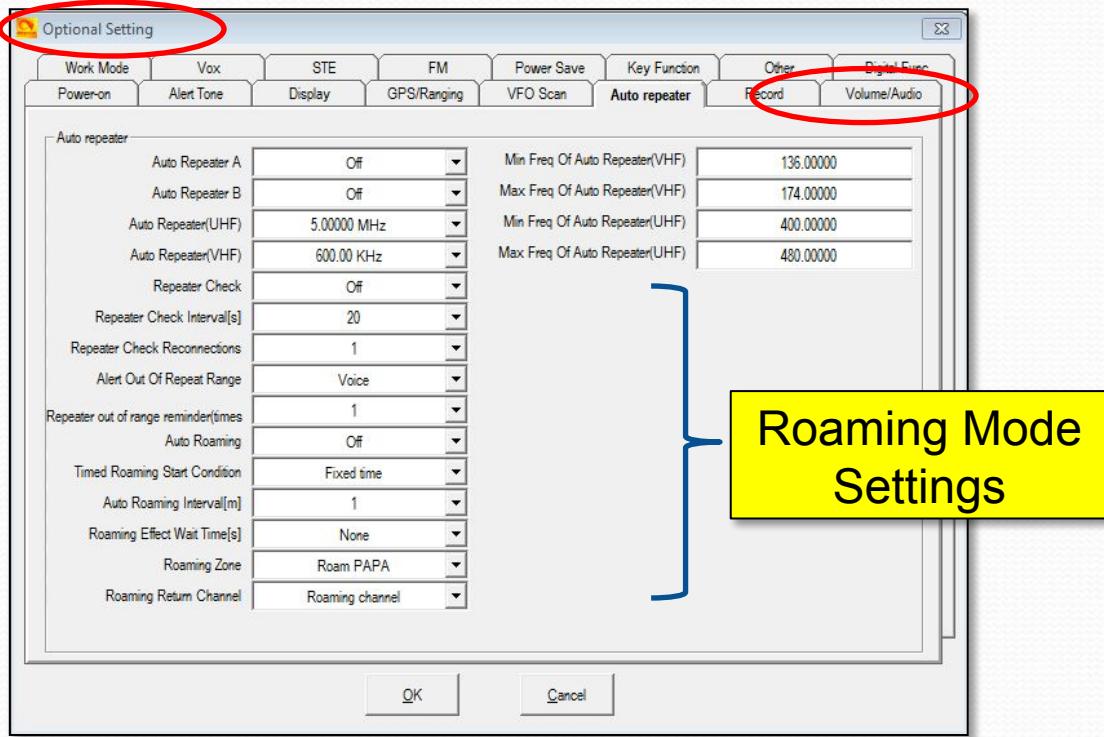
Set up Roaming Zone(s)



Group your roaming channels into a zone as shown. Double click on a row to launch the entry edit dialog shown here.

Highlight desired roaming channels from the list of available channels on the left. Move these into the right hand channel “membership list” using the “>>” key. If you make a mistake use the “<<” key to move channels back.

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. Note: “Repeater Check” and “Auto Roaming” need to be “ON” (but you’ll do that from the keypad).

Configure Roaming (2)

Optional Setting

Work Mode	Vox	STE	FM	Power Save	Key Function	Other
Power-on	Alert Tone	Display	GPS/Ranging	VFO Scan	Auto repeater	Record
Auto repeater						
Auto Repeater A	Off			Min Freq Of Auto Repeater(VHF)	136.000000	
Auto Repeater B	Off			Max Freq Of Auto Repeater(VHF)	174.000000	
Auto Repeater(UHF)	5.00000 MHz			Min Freq Of Auto Repeater(UHF)	400.000000	
Auto Repeater(VHF)	600.00 KHz			Max Freq Of Auto Repeater(UHF)	480.000000	
Repeater Check	Off					
Repeater Check Interval[s]	20					
Repeater Check Reconections	1					
Alert Out Of Repeat Range	Voice					
Repeater out of range reminder/times	1					
Auto Roaming	Off					
Timed Roaming Start Condition	Fixed time					
Auto Roaming Interval[m]	1					
Roaming Effect Wait Time[s]	None					
Roaming Zone	Roam PAPA					
Roaming Return Channel	Roaming channel					

OK Cancel

Repeater Check (**must be ON for roaming***), determines how often to check the roamed repeater and the number of times to check it.

These determine how radio alerts you when scan starts and how long the alert stays up.

“Auto Roaming” (**must be ON for roaming***) enables traditional roaming. Other settings here determine the roaming start condition and the interval that roaming is initiated etc.

Sets the default zone (can be changed from keypad) and what is displayed when the roam cycle completes. Here is set “Roaming Channel” so I know what it roamed to.

*Note that I leave “Repeater Check” and “Auto Roaming” = “OFF” in the code plug. I will turn them on from the keypad when I want to use roaming.

Using Roaming: One Shot



1. From the menu, select "Roaming"
2. Select "One Time Roam"
3. Wait for the radio to find a channel it can hit.
4. You will see "Search Success" once the radio is done.
5. If the search fails, the radio will tell you that as well.

This is good if you just want to roam once. Or, if your "Return Channel" = "Roaming Channel", it will tell you which repeater is best where you are at.



Continuous Roaming (1):



This is how you would normally use roaming as you travel. It will automatically locate the optimal repeater for the channel you have chosen.

1. From the menu, select “Roaming”
2. Select “Auto Roaming” select ON/OFF and turn it “ON”

You will see “Roaming Please Wait” followed by “Search Success” once the radio is done. A green “R” will appear in the display status line at the top.



Continuous Roaming (2):



You also need to enable “Repeater Check” so that it will check the “roamed to” repeater periodically to validate its connection.

1. From the “Roaming” menu, select “Repeater Check”. Then “On/Off”.
2. Select “ON”

You will see “Roaming Please Wait” followed by “Search Success” once the radio is done. A green “R” will appear in the display status line at the top.



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.

Using Roaming

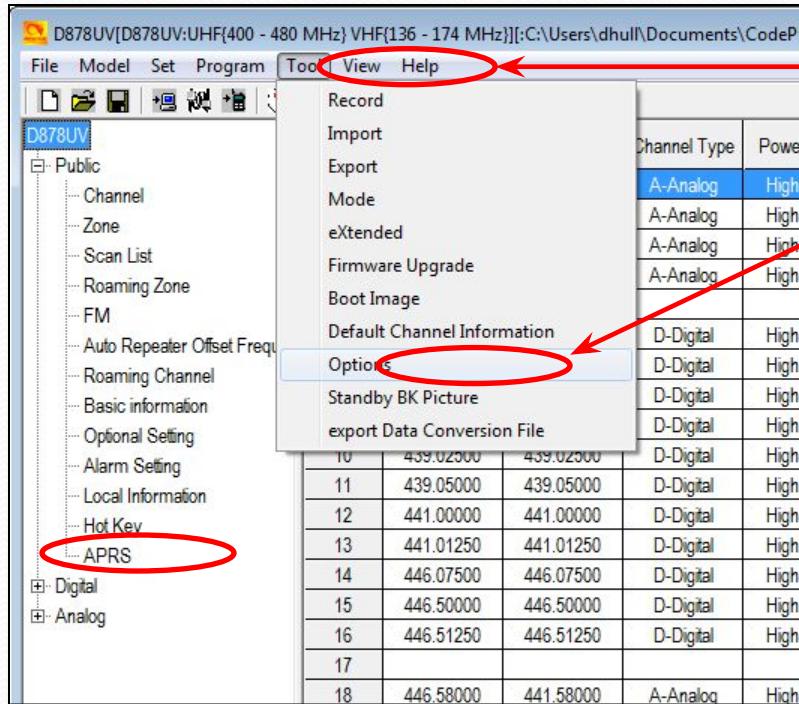
- You can initiate a single shot “Roam” on any roam zone in the manor shown.
- Once set up, you can **enable** roaming by turning “ON” both “Auto Repeater” and “Repeater Check”.
- Similarly, you can **disable** roaming by turning “OFF” both “Auto Repeater” and “Repeater Check”.

AT D878 CodePlug 101

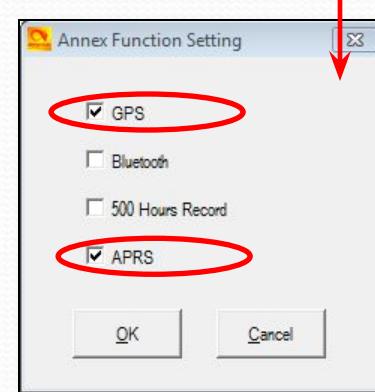
Part V

Code Plug management Concepts
(Setting up Digital APRS)

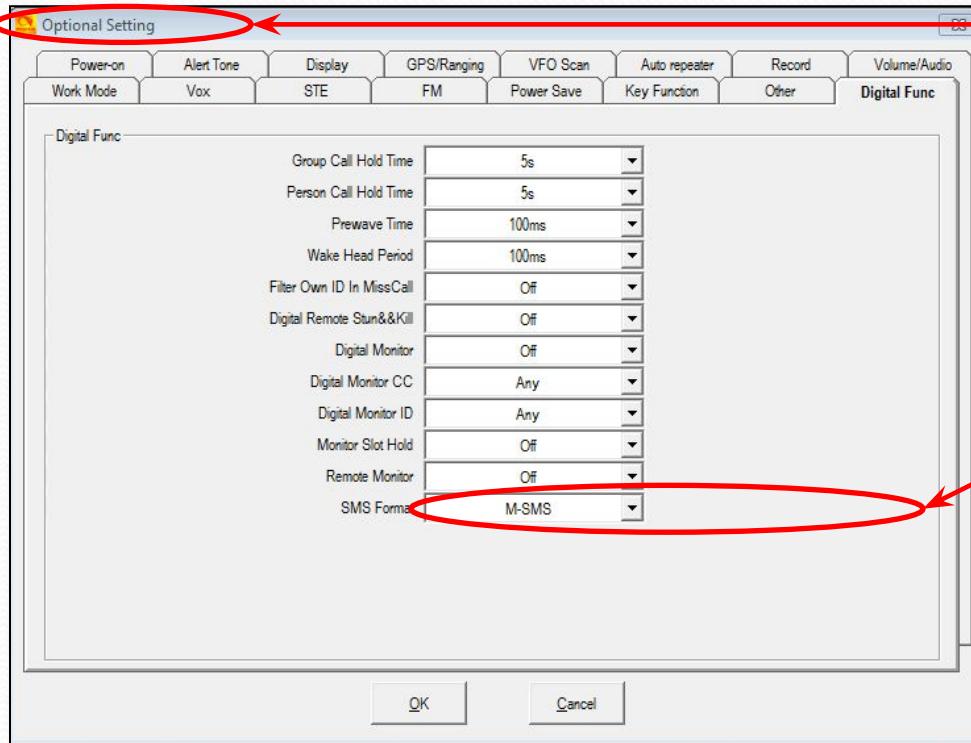
Enable GPS and APRS



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

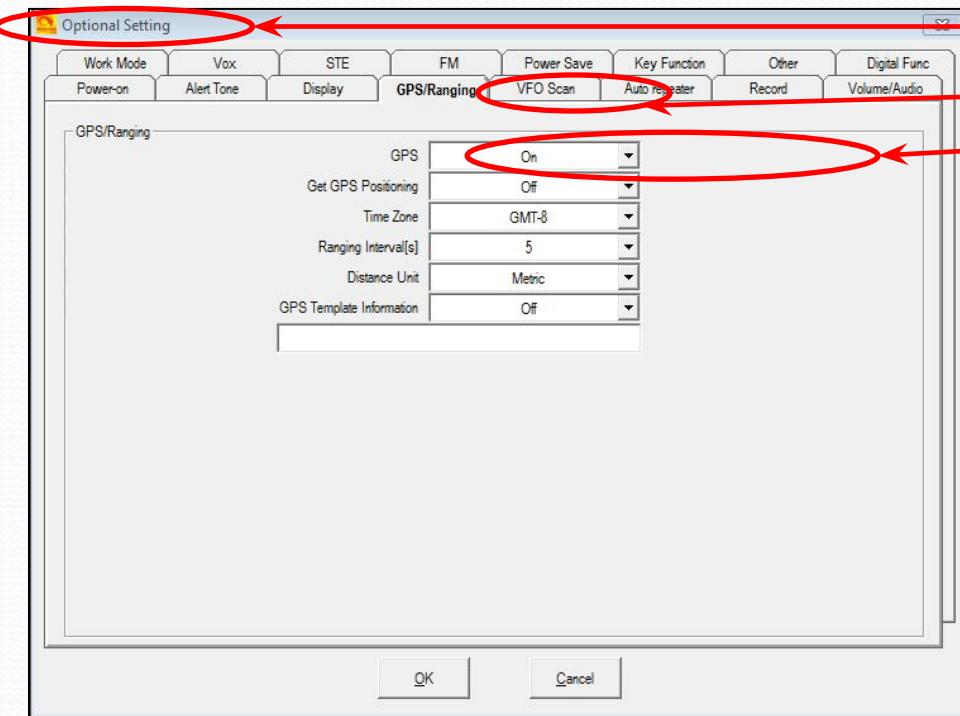


Enable Motorola SMS



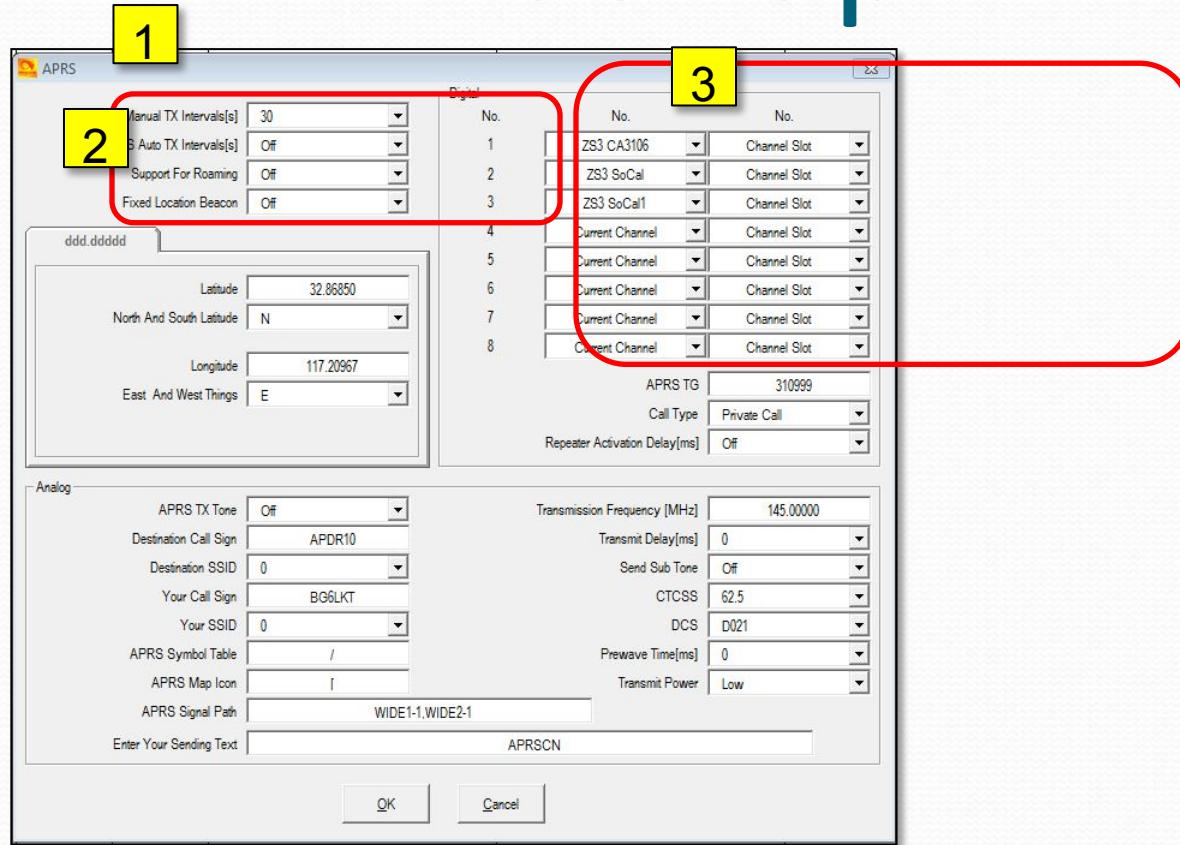
1. Select “Optional Settings” from the tree on the left hand menu tree.
2. Select the “Digital Func” tab.
3. At the bottom of this tab, make sure that SMS Format is set to M-SMS

Turn on the GPS



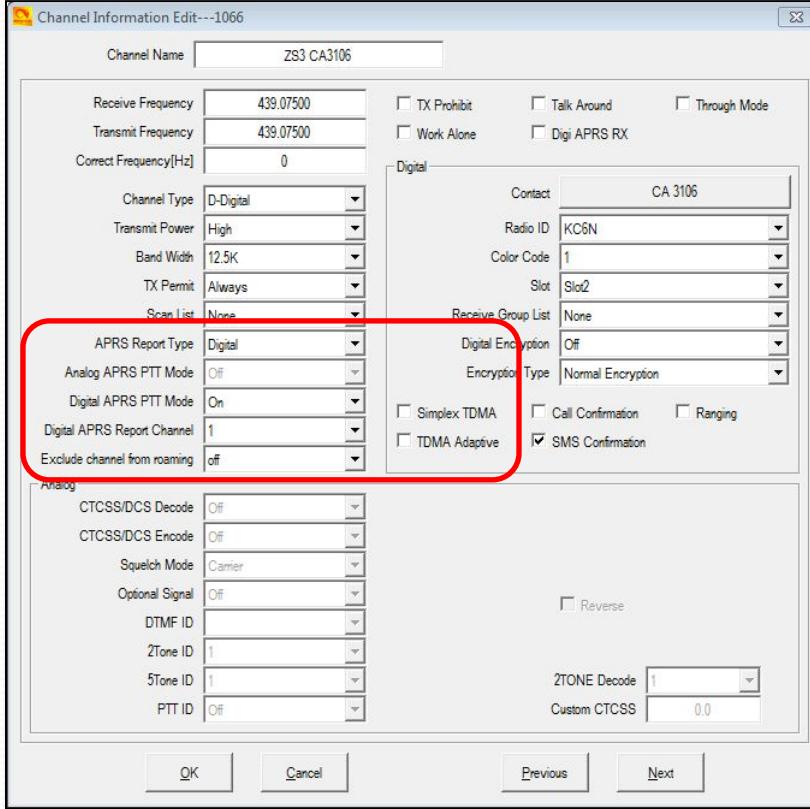
1. While in “Optional Settings”,
2. Select the “GPS Ranging” tab and,
3. Set GPS to “ON”

Set up APRS



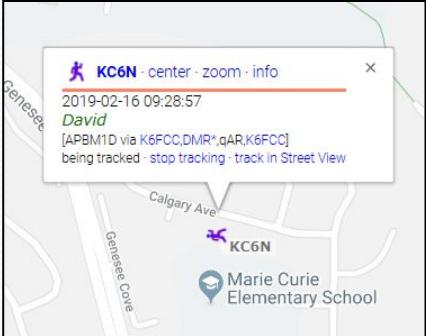
1. Open the APRS configuration dialog shown here from the left hand menu tree.
2. Set “Manual TX Interval” = 30 s, Turn “APRS Auto TX Intervals” to OFF so it doesn’t beacon.
3. Configure at least one channel in the “Digital” section at the top right. You may configure up to 8 of them.
4. Set APRS TG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

Configure Report Channel



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>

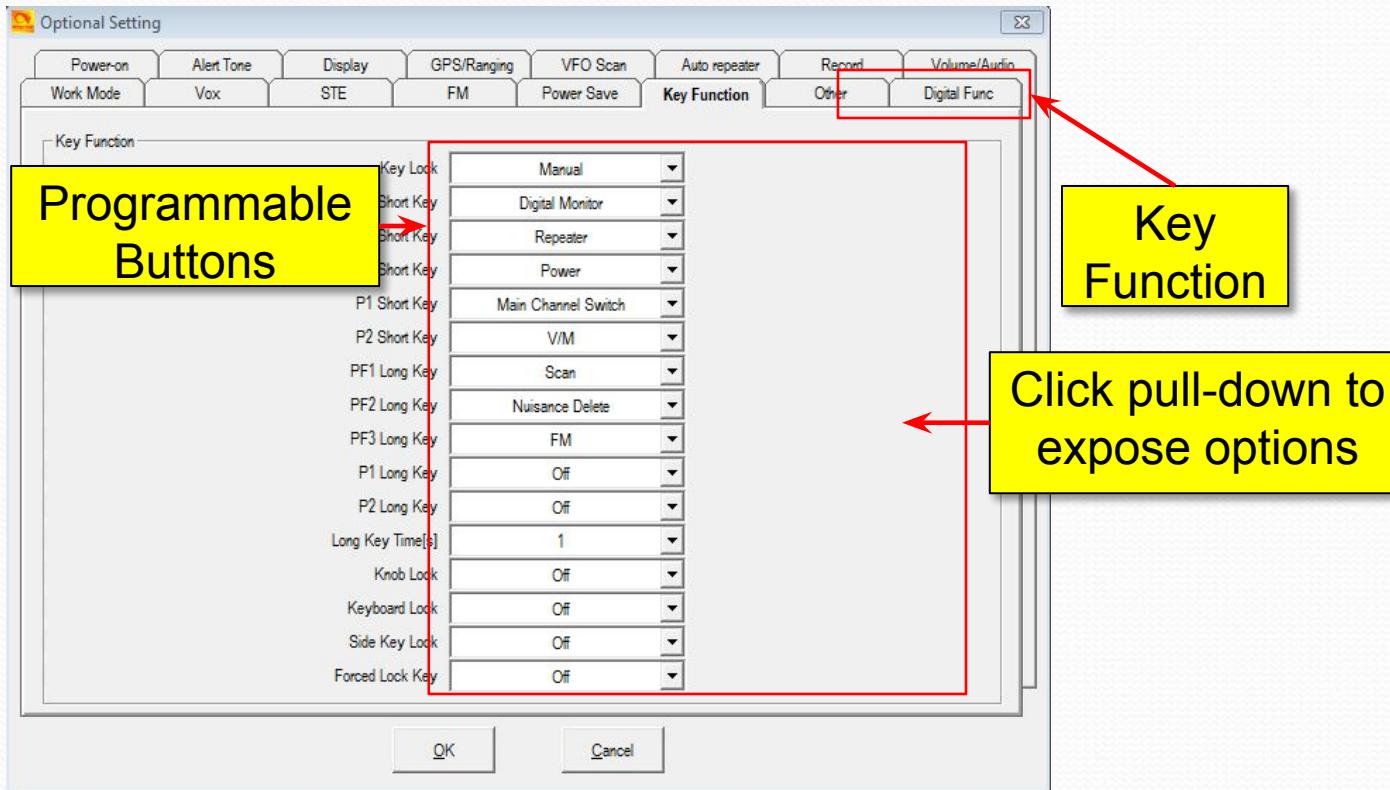


AT D878 CodePlug 101

Part VI

Code Plug management Concepts
(Bells and Whistles)

Programmable Buttons



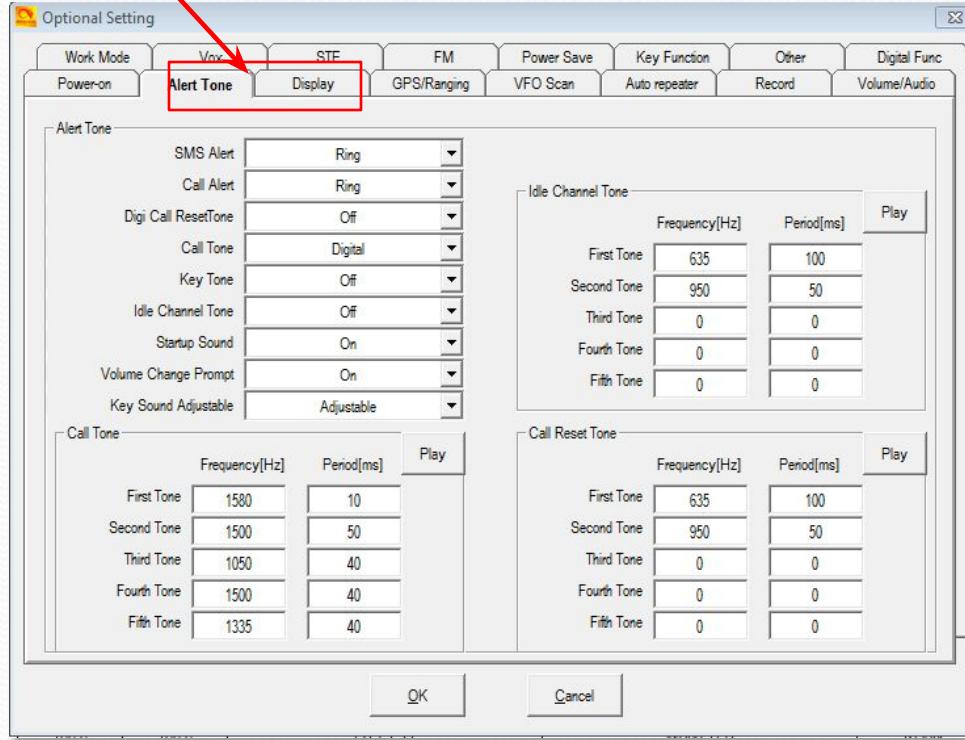
Select the “Key Function” tab to set the function of the various buttons on the radio.

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

Consult the manual for specific button locations.

Alert Tones

Alert Tones

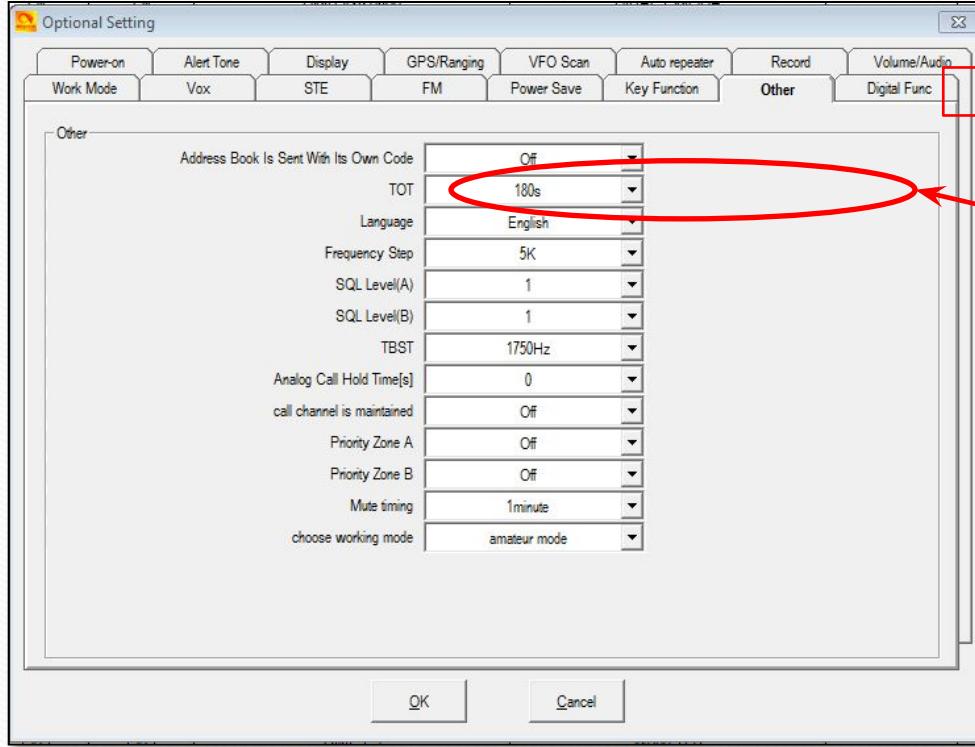


This page allows one to program a different set of alert tones which affect the sounds that the radio makes as it is used.

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

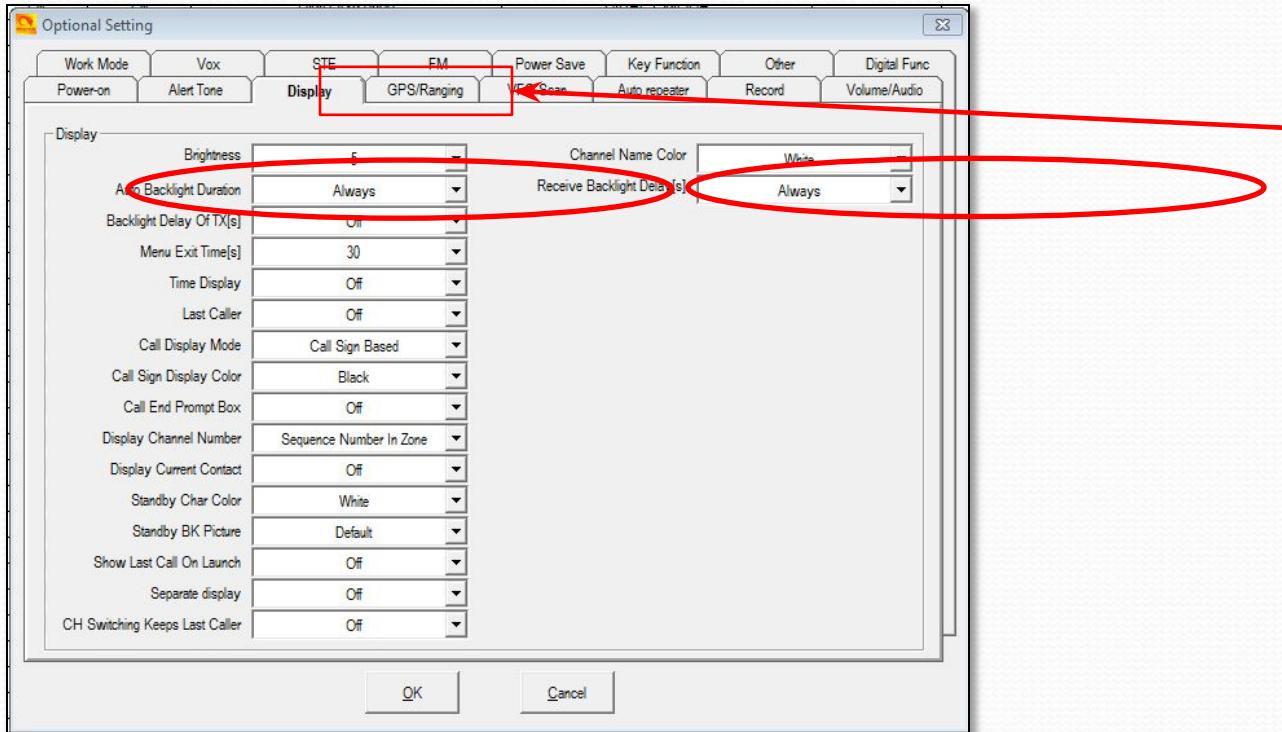
Thanks to Brian, KC2GNV for working this out.

“Blab-Off” Timer



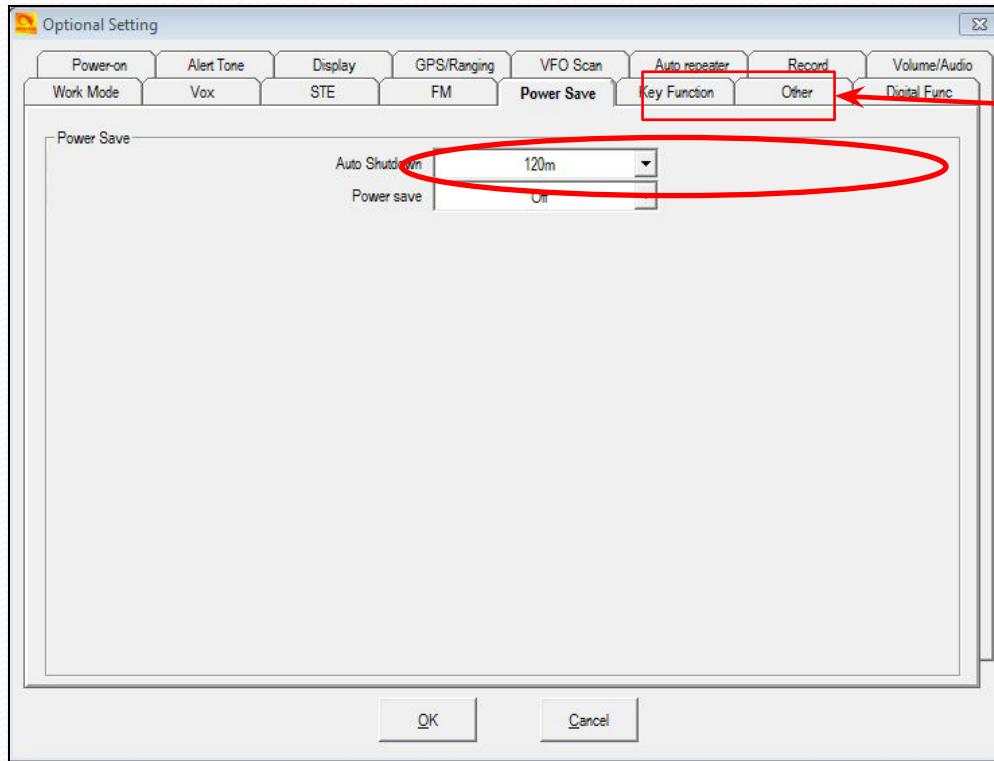
The “Other” tab provides a number of radio functions that you may want to adjust to suit your taste. One of which is the Time Out timer which will cut you off after a predetermined talk time.

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

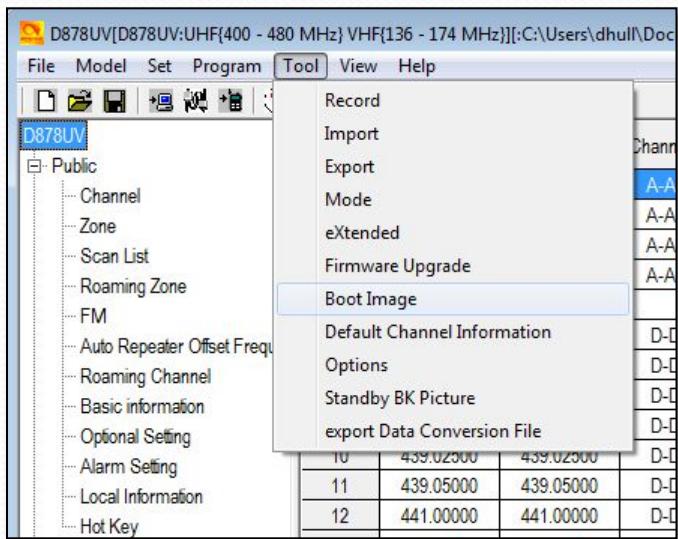


The “Power Save” tab provides an option set your to turn itself off automatically after a predetermined period of inactivity. This is a handy feature not generally provided on “commercial” radios.

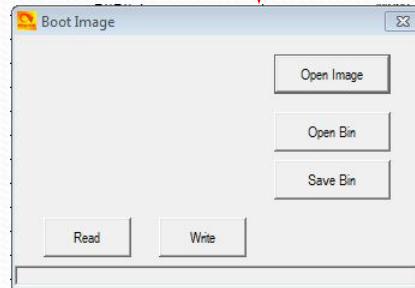
You can see that I have this one set to shut off after two hours of inactivity.

Changing Screen Image

(1)



1. Select “Tool”
2. Click “Boot Image”
3. The “pop-up” below will appear



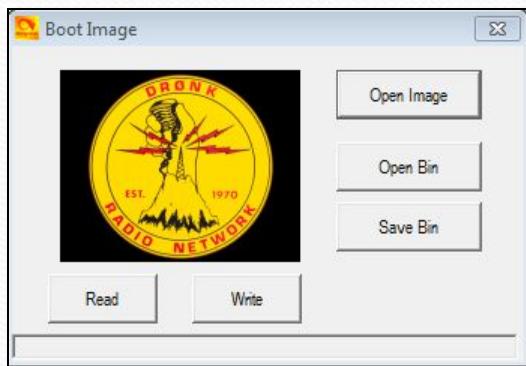
Select “Open Image” to bring up a file browser window. Point this to a JPEG file of an image you want to use as your boot image. Click “Write” to write this image to the radio. You can also use a binary file, in which case you would click “Open Bin” then select “Write” to write this image to the radio.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

Changing Screen Image

(2)

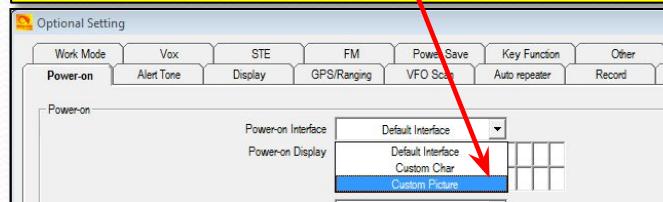


Here is an example of a .bin image available on the PAPA web site.

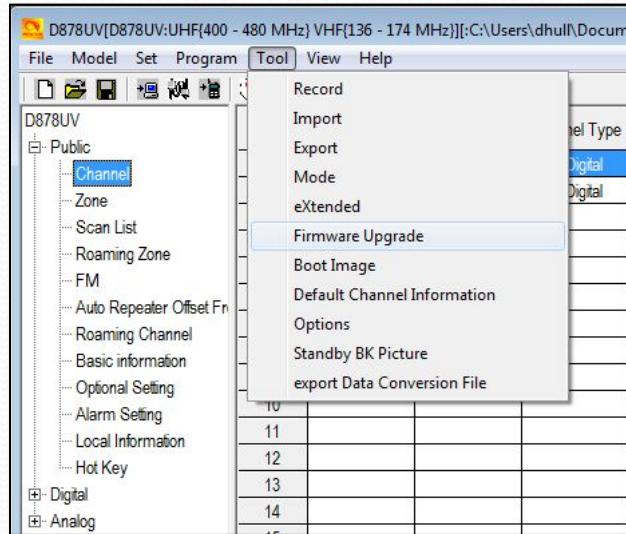


Here is an example of a .jpg image shot with a Canon 5DIV and worked in Lightroom. If you take this route, crop it to 8x10 landscape to fit the 128x160 pxl screen. There are no limitations as to color.

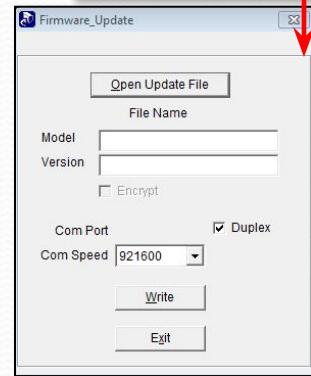
There is one more step, after this which is that you will need to go into "Optional Setting" and on the "Power-on" tab, in the "Power-on Interface" pull down, select "Custom Picture"



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.
- **02/26/19:** Extensive revisions to section IV (Roaming) to simplify the scheme and to clarify operation. Added this revision section.
- **04/13/20:** Added Section on the band error issue at the end of part 1.
- **04/14/20:** Rewrote section 1 to read a bit better after including the info on the At_Options.exe applet.