INTRODUCTION

The AnyTone D868UV radio is a VHF and UHF radio with both Digital DMR (Tier I and II) and Analog capabilities. It offers a total of 4,000 channels (Analog and Digital) and up to 130,000 contacts, as well as multiple DMR ID numbers (Radio ID's) for a single radio. With the enhanced capabilities of the AT-D868UV radio, this programming guide will help users to understand all aspects of how to program and set up the radio for maximum usability.

Please note that the AT-D868UV radio may have a locked key-board upon arrival. The FCC requires per 47CFR90.203 that an unauthorized user shall not be able to enter any frequencies and transmit on a frequency not authorized. Frequencies should only be programmed by service or maintenance personnel. This Guide is primarily provided for such service or maintenance personnel. For such person to open up the keyboard, press the "Menu" key and the "*" (star) key.

The software which programs the radio frequencies and all other user defined aspects of the operation is called a "codeplug". Creating a codeplug is a 'bottom up' process where the lowest (common) elements must be created first, then built upon until a fully functional codeplug, that can be loaded into a radio, has been created. The AT-D868UV radio has unique software for both creating the codeplug and writing it into the radio for use. When you start creating a new codeplug, many lists and groups are populated with single entries, which may be used as placeholders for initial creation of lists. The programming software allows to "import" and "export" most of the programming parameters for the creation of large amount of input data to the radio – for example large lists of contact names.

The USA programming cable for the AT-D868UV radio is typically provided by AnyTone. There are several different types of programming cables available, and the one to use has a very small USB connector. Others use an electronic circuit inside the USB connector, and will not work. Make sure the computer has the correct driver for the cable – see the Device Manager on your PC.



Open the Device Manager, and then double click on the "Ports" to display the driver (GD32 Virtual Com Port) and right click on the driver to open PROPERTIES. This will display the details of the driver, and under **Port Settings** update the "Bits per second" to 128,000 for faster read and write to the radio.

Note: Before you start any programming work read the current file from the radio into your PC so you have a baseline and something to start with.

STEP 1 – TALK GROUP (DIGITAL CONTACT) LIST

The AT-D868UV program looks like an excel spreadsheet once opened, and the left side defines the many aspects of programming. Open the DIGITAL CONTACT Talk Group tab on the left side and double click on the first line (Line No. 1). The Digital Contact List typically contains the DMR Talk Groups which the user may want to use.

D868UVE[D868UVE:UHF{40	0 - 490 I	MHz} VHF{136 -	174 MHz}][:G:\Docum	ents\Radio\Walkie Talkie\Qixiang\DMR AT-868UV\Ne
File Set Program Tool	View	Help		
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D868UVE	No.	TG/DMR ID	Call Tips	Name
Channel	1	1	None	World Wide
Zone	2	2	None	Local 2
-Scan List	3	3	None	North America
FM	4	4	None	UA All-Lang 1
-Basic information	5	8	None	Local 8
-Optional Setting	6	9	Disitel Centert F	
-Alarm Setting	7	10		dit1
-Local Information	8	13		
Hot Key	9	17	IG/DMR I	
⊡-Digital	10	91	Nam	we World Wide
Digital Contact	11	93	Cit	ty
Prefabricated SMS	12	99	Repeater Numbe	er World Wid
GroupCall List	13	113	Out /De	
-Encryption Code	14	117	State/Pro	
⊡ DMR ID List	15	123	Countr	у
	16	127	Remark	22
2000140000	17	129		,
4000160000	18	310	Call Typ	e Group Call
6000180000	19	311	Call Tip	None 👻
	20	312		
1000011200(21	313		OK Canad
1200011400(22	314		
1400011600(23	315		
⊡ Analog	24	316	None	TAC 316

Start to program all applicable DMR Talk <u>Groups</u> (TG uses Group Call) you which to monitor or talk on. This list of Talk Groups may include up to 100+ different groups. A list of world wide Talk Groups can be found at <u>http://www.dmr-marc.net/</u>

The Talk Group list can also be generated by exporting the original radio Digital Contacts Talk Groups and then addint to that list in an excel format. In the Programming Software there is import and export features in the taskbar – open the TOOL and do an "export". This opens up a new screen where you click on "Digital Contact". A new screen shows up where you define where to save the list on your PC.

Sa Export	
	Export <u>A</u> ll(Default CSV FileName)
Channel	
Radio ID List	
Zone	

In the .csv format you can paste all or your required Talk Groups from the DMR-MARC website into the spread sheet. You get the format from the original radio Codeplug you just exported.

	А	В	С	D	E	F	G	Н	I.	J	
1	No.	TG/DMR ID	Repeater Number	Name	City	State,	Country	Remarks	Call Type	Call Tips	
2	1	1	World Wid	World Wide					Group Cal	None	
3	2	2	Local 2	Local 2					Group Cal	None	
4	3	3	North Ame	North America					Group Cal	None	
5	4	4	UA All-La	UA All-Lang 1					Group Cal	None	
6	5	8	Local 8	Local 8					Group Cal	None	
7	6	9	Local 9	Local 9					Group Cal	None	
8	7	10	WW German	WW German					Group Cal	None	
9	8	13	WW Englis	WW English					Group Cal	None	

Once all TG's are entered, the Contact List should be "imported" back into the Programming Software the same way you exported the file. Click on TOOLS, and then "import" and in the new window click on Digital Contacts and select the .csv file you want imported.

D868UVE[D868UVE:UHF{40	0 - 490 I	MHz} VHF{136 -	174 MHz}][:G:\Docum	ents\Radio\Walk	ie Talkie\Qixiang\DMR AT-86	8UV\New D868UV sw\CodePlug\Codeplu	ıg D868UV 170812.	rdt]				
File Set Program Tool	file Set Program Tool View Help											
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D868UVE ⊟-Public	No.	TG/DMR ID	Call Tips		Name	City	Call Type	Repeater Number				
Channel	1	1	None	١	Norld Wide		Group Call	World Wid				
Zone	2	2	None		Local 2		Group Call	Local 2				
-Scan List	3	3	None	N	orth America		Group Call	North Ame				
FM	4	4	None	U	A All-Lang 1		Group Call	UA All-La				
-Basic information	5	8	None		Local 8		Group Call	Local 8				
-Optional Setting	6	9 (S Import					X				
-Alarm Setting	7	10										
-Local Information	8	13				Import From File List		1				
Hot Key	9	17				import from the get						
	10	91	Chann	el	G:\Documents\R	adio\Walkie Talkie\Qixiang\DMR AT-868U\V\New D	868UV sw\CodePlug\	TG new.CSV				
-Digital Contact	11	93	Padia ID	List								
Drofobrigated CMC	12	99	Radio ID	LISI]							

STEP 2 - DMR ID LIST

The next step is to fill the radio with all possible contacts you may ever encounter. By doing this, the radio will for each contact you make display the name, DMR ID, Callsign etc. of the individual you are connected with. The DMR-MARK list is steadily growing and you may have to pare it down to your needs.



The Contact List is a "look-up" table for the radio to display all the details of the contacted person instead of only the DMR ID number. Individual entries (updates) can be made as shown below, but would be very time consuming when creating the initial list.

File Set Program Tool View H	lelp									
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D868UV	No.	TG/DMR ID	Call Tips	Name	City		Call Type	Callsign	State/Prov	County
Channel	345	3127094	None	Trygve N	Minneapo	olis	Private Call	KD0PNQ	Minnesota	United States
Zone	346	3127095	None	Carol Estey	Blooming	ton	Private Call	KB0FFO	Minnesota	United States
Scan List	347	3127096		t in a Transition	A	1 1	Private Call	KB9ENE	Minnesota	United States
FM	348	3127097	Digital Contact Edi	t345			Private Call	KOSXR	Minnesota	United States
Basic information	349	3127098				5	Private Call	KE0HEP	Minnesota	United States
Optional Setting	350	3127099	TG/DMR ID	312/094			Private Call	KE0EXC	Minnesota	United States
Alarm Setting	351	3127100	Name	Trygve N Sva	rd	•	Private Call	NOJON	Minnesota	United States
Local Information	352	3127101	City	Minneapolis		a	Private Call	KC0ITQ	Minnesota	United States
Hot Key	353	3127102		1/0/0010	_		Private Call	KIODN	Minnesota	United States
⊡ Digital	354	3127103	Calisign	KDUPNQ	_		Private Call	KC0FWC	Minnesota	United States
DMR ID List	355	3127104	State/Prov	Minnesota		5	Private Call	KC0BBK	Minnesota	United States
Digital Contact	356	3127105	County	United States		e	Private Call	AJOCM	Minnesota	United States
Pretabricated SMS	357	3127106	Remarke			5	Private Call	NONKI	Minnesota	United States
GroupCall List	358	3127107	. Incition Ka	J		e	Private Call	AJOYL	Minnesota	United States
Encryption Code	359	3127108	Call Type	Private Call	-		Private Call	WODJK	Minnesota	United States
Analog Address Res	360	3127109	Call Time	News			Private Call	KOHAX	Minnesota	United States
5Tone Setting	361	3127110	Cairips	Intone			Private Call	NOPCD	Minnesota	United States
2Tone Setting	362	3127111					Private Call	KBOLTY	Minnesota	United States
DTME Setting	363	3127112	<u>O</u> ł	(<u>C</u> anc	el		Private Call	KE0ALI	Minnesota	United States
Drivit Setting	364	3127113				e	Private Call	KEOIEU	Minnesota	United States
	365	3107114	None	Gany D Wilson	Contonvi		Drivate Call	WD8CBO	Minnesota	United States

A master list of DMR contacts is available at the DMR-MARK website:

http://www.dmr-marc.net/cgi-bin/trbo-database/datadump.cgi

This database of contacts can be directly used for DMR ID's and imported into the radio as required. Download the list and open it up as an excel spreadsheet. From the DMR database, in the .csv spreadsheet, select the country, the DMR ID's you want to copy over to your radio as shown below (note: you may have to change the DMR database from a .cgi file type to a .csv file type to be able to use it).

		А	В	С	D	E	F	G	н
	1	Radio ID	Callsign	Name	City	State	Country	Remarks<	br/>
							1		
48	8381	3127092	KD0ZSA	Riverbend Wireless And	Faribault	Minnesota	United States	Club Fleet	t
48	8382	3127093	W6GFN	Barry J Altman	Plymouth	Minnesota	United States	Other <td>></td>	>
48	8383	3127094	KDOPNQ	Trygve N Svard	Minneapolis	Minnesota	United States	DMR 	•
48	8384	3127095	KB0FFO	Carol Estey	Bloomington	Minnesota	United States	DMR 	•
48	8385	3127096	KB9ENE	Lion Templin	Arden Hills	Minnesota	United States	DMR 	•
48	8386	3127097	KOSXR	Max H Van Riper	Blaine	Minnesota	United States	DMR 	•
	2007	2122000	KEOLIED	Matthews C Dlum	Minnoapolic	Minnocoto	United States	DMD-bels	

In the Programming Software open the TOOL and do an "export". This opens up a new screen where you click on "DMR ID List" and on the second screen select where you want to save it on your PC. This list is divided in sections to accommodate up to 160,000 ID's. So if your list you work in the .csv format is more than 20,000 names, when loaded into the radio, they will split up and be distributed between the several lists in the radio.

So now that you have both the DMR database and the radio original database open, copy the list of DMR ID's you want from the DMR database into the radio .csv file. Then back to the TOOL menu, and "import" so you can import the

entire .csv DMR ID list into the radio. <u>Note: You have to enter "Private Call" in all the</u> <u>CALL TYPE columns of the radio .csv database before loading it into the radio. The No.</u> <u>column can be left blank.</u>

This is how it looks before being loaded into the radio

	А	В	С	D	E	F	G	Н	I.	J
1	No.	TG/DMR ID	Repeater	Name	City	State/Prov	Country	Remarks	Call Type	Call Tips
2		1106001	KK6YLW	Robert L Garvin	Chula Vista	California	United States		Private Call	
3		1106002	K6FED	Frank E Decuire	Rancho Cucamonga	California	United States		Private Call	
4		1106003	K6IJ	Frederic K Honnold	Pine Grove	California	United States		Private Call	
5		1106004	N7BAR	Raul G Gonzalez	Moreno Valley	California	United States		Private Call	
6		1106005	KI6NRR	Brian Kunkel	Santa Clarita	California	United States		Private Call	
7		1106006	VIENDD	Drian Kunkal	Canto Clarito	California	United States		Drivata Call	

Once loaded into the radio, this is what it looks like

D868UVE[D868UVE:UHF(400 - 49	90 MHz} V	'HF{136 - 174 MF	Hz)][:G:\Documents\Ri	idio\Walkie Talkie\Qixiang\DMR AT-868UV\N	ew D868UV sw\CodePlug\Codeplug D868U	V 170812.rdt]						
File Set Program Tool View	File Set Program Tool View Help											
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D868UVE	SEUVE No. TG/DMR ID Call Tips Name City Call Type Repeater Number State/Prov Country											
Channel	1	1106001	None	Robert L Garvin	Chula Vista	Private Call	KK6YLW	California	United States			
Zone	2	1106002	None	Frank E Decuire	Rancho Cucamonga	Private Call	K6FED	California	United States			
Scan List	3	1106003	None	Frederic K Honnold	Pine Grove	Private Call	K6IJ	California	United States			
FM	4	1106004	None	Raul G Gonzalez	Moreno Valley	Private Call	N7BAR	California	United States			
-Basic information	5	1106005	None	Brian Kunkel	Santa Clarita	Private Call	KI6NRR	California	United States			

After you have created the Contact List in the radio Programming software, please save it on your PC so that you do not have to re-do this step. Depending on the size of the Contact list, it may take some time to load and read with your PC.

STEP 3 - RADIO ID LIST (Multiple Radio ID's)

The AT-D868UV radio will allow multiple DMR Radio ID numbers to be used with the radio. This feature will allow one radio to be used for example as a Commercial Radio with its own DMR ID, and at the same time also be used as an Amateur radio with another DMR ID. Double click on a line and enter the data in the separate window. Click "OK" when done to save the data you entered.

D868UVE[D868UVE:UHF{400 - 49	00 MHz}	VHF{136 - 174	MHz}][:G:\Docum	ents\Radio\Walkie
File Set Program Tool View	v Help)		
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D868UVE	No	Radio ID	Name	
. – Public		T CO CITO TE	Hume	
Channel	1	3127094	Radio1	
Zone	2	3127155	Radio2	
Scan List	3			
FM	4	🔼 Radio ID	Edit1	
-Basic information	5			
Optional Setting	6			
-Alarm Setting	7	Radi	o ID 3127	094
Local Information	8	Radio ID N	ame Rad	io1
-Hot Key	9		1	
🖻 Digital	10	1		
-Radio ID List	11		<u>O</u> K	<u>C</u> ancel

The multiple DMR ID numbers will later show up when programming the various frequencies used by the radio. So the radio can be used on multiple types of networks and be defined as appropriate for each network – Government, Commercial, and/or Amateur.

NOTE: If you download a CodePlug from the Internet for your radio, you must enter your DMR ID as per above before you load this CodePlug into the radio.

STEP 4 - SCAN LIST

Typically a scan list is created with one 'channel' for each repeater on slot 1, and one for the slot 2 channel. Initially just create an 'empty' scan list (with a name) to use during the channel creation step. Create the Scan list name that relates to your set of channels. In the Scan List menu, click on line No. 1 and open the Scan Edit window. NOTE: A channel number refer to the Channel Matrix (excel format) number No. to the very left of the matrix – there you can reference the DMR Talk Group for a channel.

Scan List Name:	Name it so it relates to the scan channels
Available Channels:	Will list the channels you create
Scan Channel Memb.:	Move over the channels you need scanned to this area
Scan Mode:	Select On or Off
Priority Channel 1:	
Priority Channel 2:	
Revert Channel:	
Look Back Time A:	
Look Back Time B:	
Dropout Delay Time:	
Dwell Time:	

Once all done, click on "OK" to save.

D868UVE[D868UVE:UHF{400 - 4	90 MHz	:} VHF{136 - 174 MF	Hz}][:G:\D	ocuments\Radio	\Walkie T	alkie\Qixia	ang\DN	MR AT-868UV\New D868	BUV sw\CodePlu	ug\Codep	
File Set Program Tool Vie	w Hel	р									
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D868UVE	No.	Channels	Name	Scan Mode	Priority	y Channe	el 1	Priority Channel 2	Look Back Time A[s]	Look E Time I	
Channel	1	MNState	18	Off	med	.MN State	е	air.WW	1.5	2.5	
Zone	2	MN DMR	18	Off	med	med.MN DMR		air.WW	1.5	2.5	
-Scan List	3	N America	17	Off	med	.MN DMF	۲ (air.WW	1.5	2.5	
FM	4	Midwest	18	Off	med	.MN DMF	2	air.WW	1.5	2.5	
-Basic information	5	💁 Scan Edit								×	
Optional Setting	6										
-Alarm Setting	7			Scan List Name			MN	VState			
Local Information	8				,						
Hot Key	9	Available Channel					Scan C	Channel Member			
	10	1 air W	w			1	73	air MN State			
Digital Contact	11	10 lit.WV	v				74	bkh.MN State			
Digital Contact	12	11 med.)	ww				75	blm.MN State			
GroupCall List	13	12 mtk.V	w		=		76	blw.MN State			
Encryption Code	14	13 msp.\	ww		_	>>	77	ctv.MN State			
	15	14 oak.V	WW				78	csk.MN State			
120000	16	15 rch.W	W				79	day.MN State			
2000140000	17	16 stc.W	w			<<	80	edp.MN State	V State		
4000160000	18	1/ stp.vv				82	It MN State				
6000180000	19	10 uom.v	18 uom.WW					med MN State			
80001100000	20	2 bkh.V				84	mtk MN State				
100001120000	21	20 bkh.N				85	msp.MN State				
120001140000	22	21 blm.N	l Am				86	oak.MN State			
140001160000	23	22 blw.N	l Am				87	rch.MN State			
	24	23 ctv.N	Am				88	stc.MN State			
	25	24 csk.N	l Am				89	stp.MN State			
	26	25 day.N	N Am				90	uom.MN State			
	27	26 edp.N	l Am								
	28	2/ TDLN	Am Am				-				
	29	20 IILIN /	NI Am		-						
	30	•			•						
	31					-					
	32										
	33				Priority	Channel	Priori	ity Channel1	•		
	34				Priority C	hannel 1	med.	MN State 👻			
	35				Priority C	honnel 2	oir W				
	36				- Honty C	ananner 2					
	37				Revert	Channel	Selec	cted	-		
	38			L	ook Back	Time A[s]	1.5	•			
	30										
	40										
	40		Dropout Delay Time[s] 2.9								
	41				Dwe	Dwell Time[s] 2.9					
	42										
	43				OK	- 1		Cancel			
	44					·	_				

STEP 4 - ZONE LIST CREATION

Create a 'Zone' name (that relates to the name of the scan list in the step above) and leave empty for the time being. Creating a 'Zone' allows you to put your configured 'channels' into logical groups. You can use the same 'name' for these (as your Scan List names) to help you keep things straight in your mind, they are in two different sections, so there is no conflict. You will need to create a zone in order to select the group of channels you will be adding. Naming choice is up to you, but most 'Zones' have a limit of 16 channels. You can name each zone by the geographical location or any other name you wish. Add your channels in the order you wish them to be accessed by the channel select knob or menu selection. You may wish to use a name for your zones that relates to its 'Scan Lists'.

D868UVE[D8	68UVE:UHF{400 - 4	190 MHz) VHF{136 - 174 MI	Hz}][:G:\l	Docume	ents\	Radio\Wal	lkie Talkie\	Qixiang\DMR AT-868UV	\New D868
File Set Pro	gram Tool Vie	ew Hel	р							
D868UVE		No.	Name	Zo	ne Inels		A Chan	inel	B Channel	
Channe	el de la companya de	1	W Wide	1	8		med.W	w	mtk.WW	
Zone		2	N America	1	8		med.N.	Am	mtk.N Am	
-Scan Li	st	3	Midwest	1	8		med.Mid	west	mtk.Midwest	
FM		4	MN DMR	1	8	r	ned.MN	DMR	mtk.MN DMR	
Basic in	formation	5	MN State	1	8	n	ned.MN	State	mtk.MN State	
- Option	7 Zone Edit5									
Alarm	Zone cuit5									
- Local - Hot Ke	Zone Name		MN State					A C	hannel med.MN State	•
Digital								BC	hannel mtk.MN State	-
Radio	Available Channel						Zone Chann	el Member		
Digital	1 air.WW	1		•			73	air.MN St	tate	
Group	10 lit.WW						74	bkh.MN S	State	
Encry	11 med.W	W					75	blm.MN \$	State	
	12 mtk.WV	N		=	>>		76	blw.MN \$	State	
	13 msp.W	W					77	ctv.MN S	State	
200	14 oak.W	N					78	csk.MN S	State	
400	15 rch.WV	V				-	79	day.MN \$	State	
600	16 stc.WV	V			<<		80	edp.MN S	State	
000	17 stp.WV	V		_			81	fbl.MN St	ate	
100	18 uom.W	W		_			82	lit.MN Sta	ate	
100	19 air.N A	m		_			83	med.MN	State	
120	2 bkh.W	N		_			84	mtk.MN \$	State	
	20 bkh.N	Am					85	msp.MN	State	
⊡ Analog	21 blm.N	Am					86	oak.MN S	State	
	ZZ blw.N	Am					8/	rch.MN S	State	
	23 ctv.N /	Am		_			88	stc.MN S	tate	
	24 csk.N	Am					89	stp.MN S	itate	
	20 day.N	Am					90	uom.MN	State	
	Zo edp.N	Am								

In the Zone menu, click on Line No.1 to open the Zone Edit window.

The above sample is scanning the same channel but from several different repeaters so that when driving around the city there is always an available connection. Other set-ups for scanning uses one repeater and scans all programmed Talk Groups on that repeater.

- The channel the radio starts up with for channel A A Channel: The channel the radio starts up with for channel B
- B Channel:

STEP 5 - CHANNEL – FREQUENCY SET-UP

The AT-D868UV offers programming of 4,000 channels for UHF and VHF. To start double click on the first line No.1 to open the Channel Information programming window for that channel:

2 D868UVE[D868UVE:UHF{400 - 4	90 MH:	:} VHF{136 - 174 M	MHz}][:G:\Doc	uments\Radio	Walkie Ta	alkie\Qixiar	ng\DMR AT-8	68UV\New E	1868UV sw\CodePlug\Codeplug D868UV 1
File Set Program Tool Vie	w He	р							
🗋 🗃 🔚 😬 👯 🐮 🕐									
D868UVE	No	Receive	Transmit	Channel	Dowor	Band	TCSS/DC	TCSS/DC	Channel Name
- Public	NO.	Frequency	Frequency	Туре	Fower	Width	Decode	Encode	Channel Name
Channel	1	444.92500	449.92500	Digital	High	12.5K	Off	Off	air.WW
Zone	2	Channel In	formation Edi	+1					
Scan List	3	- Churner In	inonnation Ear						
FM	4	_	Channel Name		air.WW				
Basic information	5								
Optional Setting	6	Pag		444.00500		igital ———			
Alarm Setting	7	The c	erve i requericy	444.92000	_		Contact		W-14 W64-
Local Information	8	Trar	nsmit Frequency	449.92500					world wide
Hot Key	9		Channel Type				Kadio ID	Radio2	<u> </u>
	10		Channel Type	Digital	<u> </u>		Color Code	11	-
Digital Contact	11		Transmit Power	High	-		Slot	Slot1	
Digital Contact	12		Band Width	12.5K	-		Group List	4	
GroupCall List	13		TX Permit	ChannelEnce	-	_		<u> </u>	
Encryption Code	14		01	ChannelFree	4	D	igital Encryption	Off	•
	15		Scan List	MNState	<u> </u>	E	Encryption Type	Normal Encry	rption 👻
120000	16		TX Prohibit					,	
2000140000	17						TDMA		
4000160000	18						TDMA Ada	tive	
6000180000	19		Talk Around						
80001100000	20						Call Contin	hation	
	21	Analog							
120001140000	22	СТС	SS/DCS Decode	• O#	-				
140001160000	23	СТС	90/DCG Enords						
⊡ Analog	24		-33/DC3 Encoue	* 0#	<u> </u>				
	25		Squelch Mode	^e Carrier			T		
	26		Optional Signa	I Off	-				
	27		DTMF ID				🗖 Reverse		
	28		2Ter - 15						
	29		210ne IL	/ <u>1</u>	_				
	30		5Tone IE	1	-	C	Custom CTCSS	251.1	
	31		PTT ID) Off	-			1 491.1	
	32			1					
	33				1		1		
	34			<u>O</u> K		<u>C</u> ancel			
	35			-					
	36	442.42500	447.42500	Digital	High	12.5K	Off	Off	uom.N Am
	37	444.92500	449.92500	Digital	High	12.5K	Off	Off	air.Midwest

The Channel Information Edit window contains several options which will be explained below:

Channel Name:	the name of the channel (typically name of repeater and TG)
Receive Freq.:	the VHF or UHF frequency
Transmit Freq.:	the VHF or UHF frequency
Channel Type:	Select Analog, Digital, Mixed Analog or Mixed Digital
Transmit Power:	Select one of four levels 6W/2.5W/1W/0.5W
Wide Narrow:	Select the bandwidth of transmit

TX Permit: Scan List: TX Prohibit: Alone: Talk Around :	Select type of transmit function – typically ColorCode Select which Scan List this frequency belongs to Check if the frequency is a listening channel only Check if the "alone" emergency function should be allowed Check if the TX and RX frequency should be the same
Digital	
Contact:	Select the Talk Group this frequency belongs to
DMR/Radio ID:	Select which of the DMR ID's to use for this channel
Color Code:	Select which CC is related with this channel
Slot:	Select which slot (1 or 2) applies to this "Contact"
Group List:	Once programmed, select group list for this channel
Digital Encryption:	Select if Off or which number to use
Encryption Type:	Select which type to use.
TDMA:	Check if xxxxxxxxx?
TDMA Adaptive:	Check if xxxxxxxx?
Call Confirmation:	Check if xxxxxxx?
Analog	
CTCSS/DCS Decode	Select Off or CTCSS or DCS and tone frequency
CTCSS/DCS Encode	Select Off or CTCSS or DCS and tone frequency
Squelch Mode:	Select how to use the squelch
Optional Signal:	Select Off, DTFM, 2Tone or 5Tone
DTFM ID:	Select DTFM ID
2Tone ID:	Select 2 Tone ID
5 I one ID:	Select 5 I one ID
PTTD:	Select off, at start, at end or both
Custom CICSS:	Enter value when requiring a custom CICSS tone

Once completely filled in, click OK to save this Channel. There is also an option to first "export" the channel data into a .csv file, and then work the entry of most data in the excel format. Then save it and "import" back into the codeplug. For large channel data entries, this may be the easiest method where copy and paste function will allow easier generation of a lot of channels.

The channel set-up can also be created by first exporting the original channel set-up in the radio, and then as a .csv excel file edit, copy and paste as many channels and frequencies you need. As each repeater being programmed may have the same Talk Groups, working all of this in a excel format and then importing it all back into the radio is the most efficient method of building a large channel database for the radio.

Note: working the .csv file for channels, the No. column either should be empty, or show sequential numbers starting with 1 for channel 1, 2 for channel 2 etc.

STEP 6 - OPTIONAL SETTING

The AT-D868UV radio basic configuration set-up is done in the Optional Setting window.

💁 Optional Setting					—
Work Mode		Digital Function		- FM	
Display mode	Channel 👻	Group Call Hold Time	1s 💌	FM Function	Off 💌
Frequency Display	Channel Name 🔻	Person Call Hold Time	1s 🔻	FM VFO/MEM	VFO 🔻
VF/MR(A)	MEM 🔻	Prewave Time	0ms 💌	FM Work Channel	1
MEM Zone(A)	MN State	Wake Head Period	0ms 💌	FM Monitor	Off 🔹
VF/MR(B)	MEM 🔻	Record Function	Off 🔹		, _
MEM Zone(B)	W Wide		·	_ Other	-
Main Channel Set	A 🔽	Power Save			
Sub-Channel Mode	On 🔹	Auto Shutdown		Frequency Step	12.3K •
		Power save	j0# <u>▼</u>	Language	English 💌
STE		- Key Function		SQL Level(A)	<u> </u>
STE Type Of CTCSS	Off 🗾	Key Lock	Manual	SQL Level(B)	1 🗾
STE When No Signal	Off 🔽	PF1 Short Key	Voltage 🗸	Scan Type	co 💌
- Vev		PF2 Short Key	Monitor 🗸	Mic Gain	3
VOX VOX Level	Of 🗸	PF3 Short Key	Alarm	MON Key Function	Squelch Off Momentary
VOX Delay	1.0s •	P1 Short Key	Main Channel Switch	Brightness	5 💌
VOX Detection	Built-in Microphone	P2 Short Key	V/M 🗸	Auto Backlight Duration	Off 💌
				GPS	On 💌
Power-on		Tip Tone		TBST	1750Hz 💌
Power-on Interface	Custom Char	SMS Tips	Ring 💌	Time Zone	GMT-6
Power-on Display Char	KDOPNQ	Call Tips	Ring 💌		,
-	T S V A R D	Digi Call ResetTone	On 💌		
Power-on Password	Off 👻	Call Tone	Off 💽		
Power-on Password Char	12345678	Key Tone	On 💌	<u>0</u> K	<u>C</u> ancel
	1				

Once the Optional Setting window is open, there are several sub-sections to program.

Work Mode

Display Mode:Defines what the radio display will show when in receive modeFrequency Display:Defines if the display shows frequency or channel numberVFO/MEM A:Select VFO or MEM for the "A" upper channelMEM Zone A:Selects any of the programmed Talk GroupsVFO/MEM B:Select VFO or MEM for the "B" lower channelMEM Zone B:Selects any of the programmed Talk GroupsMain Channel Set:Select the "A" or "B" channel to become the main channelSub-Channel Mode:Select off if only the "A" channel will be used or both

SQUELCH TAIL ELIMINATE (STE)

STE Type CTCSS:	Off, Silent or a selected setting
STE When No Signal:	Select Off, 55.2 Hz or 259.2 Hz

VOX

VOX Level :	Select off or 1 to 3
VOX Delay:	Select how many seconds of delay
VOX Detection:	Select built-in mic or external mic or both

Power On

Power-on Interface:	Select custom display or radio standard display
Power-on Display Char.:	Enter your unique display for start-up
Power-on Password:	Select on or off
Power-on Password Ch.:	Write in keyboard characters to unlock the radio

Digital Function

Group Call Hold Time:	Select hang time for a Group Call
Person Call Hold Time:	Select hang time for a Private Call
Prewave Time:	Select the time to wake-up the radio from a power save
Wake Head Period:	Select the time for the preamble
Record Function:	Select on or off for the internal record function

Power Save

Auto Shutdown:	Select off or minutes before auto shut-down
Power Save:	Select off or on

Key Functions

Key Lock:	Select Manual or Auto key lock function
PF1 Short Key:	Select from several functions for the radio key below PTT
PF2 Short Key:	Select from several functions for the radio key 2 below PTT
PF3 Short Key:	Select from several functions for the orange radio key
P1 Short Key:	Select from several functions for the P1 radio key
P2 Short Key:	Select from several functions for the P2 radio key

FΜ

FM Function:	Turn on or off the FM radio
FM VFO/MEM:	Select VFO or Memory
FM Work Channel:	Select the FM channel to listen to (after set-up done)
FM Monitor:	When in FM mode select on if the radio shall receive calls

Other

TOT:	Max Total Time of Transmit
Frequency Step:	In VFO mode, selects the frequency steps
Language:	Select language for the programming software

SQL Level A: SQL Level B:	Set the squelch level for the "up" channel – set at 2 Set the squelch level for the "down" channel – set at 2
Scan Type:	Select TO – 5 sec stop, CO – 2 sec stop or SE stops scan
Mic Gain:	Allows increasing the mic sensitivity
MON Key Function:	Set to define the function of the side key for "Monitor"
Brightness:	Sets the display brightness – 5 is the brightest
Auto Backlight Duration:	Sets the time the display is on or off for always on
GPS:	Set On or off
TBST:	Tone Pulse Freq. Selection for opening certain repeaters
Time Zone:	Set the GMT time zone for the radio

Once all the parameters have been programmed, click on "OK" to save what you have programmed.

POPULATE YOUR SCAN LIST

Go back to your Scan List, add the 'ON' channels for slot 1 and 2 to this list from the just created group of channels. You may also implement the alternative method, understanding the limitations.

POPULATE THE ZONE LIST WITH CHANNELS

Go back to the Zone List you previously created and add in the first 16 channels of the most recent group you added. Most radios can only have 16 channels in a Zone, so pick the ones you want. If you need more, then you create another Zone List and add the ones missing. If the Talk Group is in the less used second zone, you will need to change zones and channel to reply (unless you set a sufficient delay in scanning). With this method, your scan list will scan all active talk groups on any channel, then you rotate the channel selector to that talk group to respond.

CREATE ANALOG ZONE AND CHANNELS

Add a zone for your analog channels, then add each repeater as a channel. Name your zone by its function or geography (choice is yours). Optionally you can also create scan lists for your analog channels and assign a scan list to a group of channels or an entire zone.

ANALOG ADDRESS BOOK

The radio allows a set of addresses for the Analog mode. Open the Analog Address Book and click on the first line to open the Analog Address Book Edit window.

	ιP			
L 🚔 📕 18 👯 18 🕐				
0868UV	No	Number	Name	
- Public	110.	Humber	Indine	
Channel	1	1	Minnesota	
Zone	2			
Scan List	3		Address Rook Edit	2
FM	4	Analog	Address Book Edit	
Basic information	5			
Optional Setting	6	N	umber 2	2
Alarm Setting	7		Name Rene	atero
Local Information	8			alard
Hot Key	9		01	0.1
∃ Digital	10	_	UK	<u>C</u> ancel
DMR ID List	11			
Digital Contact	12			
Prefabricated SMS	13			
GroupCall List	10			
Encryption Code	14			
Analog	15			
Analog Address Book	16			

The Call ID reference the DTMF or 5Tone number programmed under its menu

PREFABRICATED SMS

The radio has a function to send SMS messages from your radio to other Digital Contacts. There is an opportunity to create advanced SMS messages and have them stored in the radio. Open the Prefabricated SMS window, and click on the first line to open the Prefabricated SMS Edit window.

Here you can program SMS messages and store in the radio – see below.

D868UV	No.	Text
Channel	1	
Zone	2	Prefabricated SMS Edit1
Scan List	3	
FM	4	
Basic information	5	
Optional Setting	6	
Alarm Setting	7	Content Call from KD0PNQ
Local Information	8	
	9	
DMR ID List	10	
Digital Contact	11	
Prefabricated SMS	12	
GroupCall List	13	
Encryption Code	14	
🖻 – Analog	10	
Analog Address Book	10	
5Tone Setting	10	
21 one Setting	10	

GROUP CALL LIST

A common function for a DMR Radio is to send Group Calls. The set-up of Group Calls , open up the Group Call List Edit window and create your Group Call List Members.

D868UV[D868UV:UHF{400 - 490 MHz}	/HF{136	- 174 MHz}][:0	:\Documents\R	adio\Walkie Ta	lkie\Qixiang\D	MR AT-868UV\	codeplugs\AT-[0868UV MN WI	l Code
File Set Program Tool View He	р								
🗋 🖻 层 🖷 🚧 🍓 🥐									
D868UV	No.	Contact 1	Contact 2	Contact 3	Contact 4	Contact 5	Contact 6	Contact 7	Co
	1	MN State							
Zopo	2	WIN.State	🚨 GroupCall	List Edit					<
Scan List	2								
FM	- 1		Available	GroupCall Contac	t	Group	Call List Member		
Basic information	5		World W	lide	*	MN.S	State		
Optional Setting	6		Local 2						
Alarm Setting	7		North A	merica					
Local Information	8		Local 8	Lang I					
Hot Key	9		Local 9		_				
i ⊡ Digital	10		WW Ge	rman					
DMR ID List	11		WW En	glish	· · · ·				
Digital Contact	12		Bm Wo	rdic Id Wide	L				
GroupCall List	13		BM N A	America					
Encryption Code	14		SIMPLI	EX					
Analog	15		UA Eng	lish 1					
Analog Address Book	16			dic i lich 2					
5Tone Setting	17		UA Nor	dic 2	-				
2Tone Setting	18		,			,			
DTMF Setting	19								
	20				<u>o</u> k	<u>C</u> ancel			
	21								
	22							1	

ALARM SETTING

The radio offers a comprehensive alarm system to protect the user of the radio under several conditions. Open the Alarm Setting to gain access to the Emergency Information Edit window.

Sector Se			
Simulated Alarm			Digital Alarm
Emergency Alarm	Transpond+Alarm	•	Emergency Alarm Transpond+Backgound
ENI Type Select	DTMF 💌		Alarm Time[s] 30
Emergency ID	_	[Duration of TX[s] 30
Alarm Time[s]	10 👻	[Duration of RX[s] 30
Duration of TX[s]	30 💌		Emergency ENI Send Select Assigned Channel 💌
Duration of RX[s]	30 💌		Emergency Channel 2
Emergency ENI Send Select	Selected Channel 🔹		Emergency Cycle Continuous
Emergency Channel	-		Number 0
Emergency Cycle	Continuous 🗸		Name KD0PNQ Trygve
-Work Alone			City Minneapolis
Response Time		ſ	Call Type A Call 💌
Warning Time	1m <u>•</u>	ĺ	Call Tips Ring 💌
Response	15 💌		
Kesponse	Key 💌		OK Cancel

Simulated Alarm

Select from Alarm, Transpond + Background, Transpond + Alarm, or Both
: Select from None, DTMF or 5Tone
Select after what time the alarm should be initiated
Select the duration of listening mode after an alarm reset
Select which channel the Alarm should be sent out on Select which channel to use
Select Continuous or a time
s the No. on the Channel Menu line for the selected frequency.
Select the time for the radio to respond to an Alarm trigger Select the duration if a warning transmission Select Key or Voice for a response to reset
Select one of 4 options for how to initiate an Alarm Select after what time to initiate the Alarm Select the duration of the Alarm transmission

Emergency Ch.:	Select which channel to use
Emergency Cycle:	Select Continuous or a time
Number:	Channel number from the Channel Menu No. line
Name:	Enter the name and license number you want transmitted.
City:	Enter the location of your position to be transmitted
Call Type:	Select the type of call you need for an Alarm
Call Tips:	Select how you want the alarm to respond.

Enter OK to save.

LOCAL INFORMATION

Displays the COM port information

HOT KEY

The Hot Key programming offers 3 sub-windows within the Hot Key Edit window.

Analog Quick Call

Hot Ke	ey	15	5
Hot Ke	y Set		
	Analog	Quick Call	Ľ
No.	Call Type	Call ID	
1	DTMF	Off	
2	2Tone	Off	
3	5Tone	Off	
4	Off	Off	

The Call ID refer to the DTFM, 2Tone or 5 Tone set up under separate menu

State Information

Hot Ke	ey 15	
Hot Ke	y Set	
	Analog Quick Call	State Information
No.	State Content	
1	Minnesota	
2		
3		
4		
5		
6		

Hot Key

he Hot Key Set window allow

Analog Quick Call			<u> </u>	Stat	te Information	Hot Key
Key	Mode	Menu	Call Type	Call Object	Digi Call Type	Content
Hot Key 1	Call	SMS	Digital	D0PNQ Trygve	Person Call	Off
Hot Key 2	Menu	New SMS	Analog	Off	Off	Off
Hot Key 3	Menu	Hot Text	Analog	Off	Off	Off
Hot Key 4	Menu	Received SMS	Analog	Off	Off	Off
Hot Key 5	Menu	Send SMS	Analog	Off	Off	Off
Hot Key 6	Menu	Contact List	Analog	Off	Off	Off
0	Menu	Manual Dial	Analog	Off	Off	Off
1	Menu	Call Log	Analog	Off	Off	Off
2	Menu	Dialed Call	Analog	Off	Off	Off
3	Menu	Received Call	Analog	Off	Off	Off
4	Menu	Missed Call	Analog	Off	Off	Off
5	Menu	Zone	Analog	Off	Off	Off
6	Menu	Radio Set	Analog	Off	Off	Off
7	Menu	SMS	Analog	Off	Off	Off
8	Menu	New SMS	Analog	Off	Off	Off
9	Menu	Hot Text	Analog	Off	Off	Off
*	Menu	Received SMS	Analog	Off	Off	Off
#	Menu	Send SMS	Analog	Off	Off	Off

ANALOG PROGRAMMING

The programming of Analog channels are done the same way as for the digital channels. Analog and digital channels can be mixed, but will be easier to find if programmed as a separate group at the end of all digital DMR channels. Exporting and working all this in the .csv format will allow to sort the channels before loading into the radio, so that the digital channels appear first, and the analog following rather than intermixed.

If you by means of this Guide feel confident to program digital channels, entering your analog channels should be very easy.

FINAL STEP - WRITE YOUR CODEPLUG TO YOUR RADIO

The AT-D868UV radio comes with a special programming cable. This cable requires the computer to find a driver so that it will work correctly – most computers will find this driver automatically when inserted into the USB connector and radio for the first time. Per note on page 1 please update the read and write speed of the driver.

Write the file to your radio. Save the file to your PC with a name that you will remember. You may wish to use version numbers in your file naming to help you with progressive updates. At some point you may 'break' your codeplug by setting something differently and this may affect the radio operation. It helps to be able to 'go back' to an earlier working version. Some Codeplug Programming Software (CPS) may also require that you update the clock in the radio by another function, be sure to do this if you want an accurate time display!

AT-D868UV RADIO TOTAL SYSTEM RESET

If the AT D868UV radio becomes un-operative, there is a solution to reset the entire radio. This is <u>not recommended</u> if the radio operates ok, but can become a final solution for a major problem.

To reset the radio, power it on while holding the PTT and the PF1 button below the PTT at the same time. The radio will start up with a note on the display stating MCU Reset, Please Wait – and do not turn the radio off while it restarts.

After a re-start the radio will display the setting of the date and the time. Use the updown key to set the current year. Move to the month by pushing the P1 key. Set the month, and use the P1 key to move forward each step. Once done, click the Menu key to save the date and time.

You may now see the Chinese language. If it starts with Chinese, click Menu, scroll down to the grey cogwheel globe and click Menu, click Menu 1 more time and scroll down to item #8 and click Menu and select English.

The codeplug has also been replaced as part of the system re-set, so you need to reload your codeplug into the radio to make it work the way it should.