

BAOFENG DM-1702

CodePlug Programming Guide

This programming guide is for the DM-1702,DM1702A,DM-1702B,DM-X Series DMR Digital Radio.

PREFACE

Thank you very much for choosing our BAOFENG Dual Band Digital DMR and Analog two way radio.

This radio adopts the latest advances in technology, providing reliable communication in today's demanding communication environment.

This radio offers both DMR digital and analog communication, introduces innovative DMR digital processing system to achieve SMS, high-audio quality and digital encryption. It offers great stability, and reliability, together with long distance communication as well as fashionable design and compact exterior lines. This radio has Text Messaging, Recording, Voice Message, Digital Encryption, Emergency Alarm, Work Alone GPS, APRS Location Reporting, Analog DTMF; CTCSS/CDCSS encode/decode functions.

PROGRAMMING NOTES

When programming the radio, start by reading the factory software data, and then rewrite this data with your frequency etc., to a new saved code plug, otherwise errors may occur.

You can use the programming cable with a PC to program the frequency, channel type, power etc. you programming must comply with your FCC (or other country) license certification.

European Users should note that operation of this unit in Transmit mode requires the operator to have a valid Amateur Radio License from their respective Countries Amateur Radio Licensing Authority for the Frequencies and Transmitter Power levels that this Radio transmits on. Failure to comply may be unlawful and liable for prosecution. At this subject, refer to the "EU" specification guide 2014/53/EU.

PROGRAMMING GUIDE

The programming software and code plug programming guide are available for download from BAOFENG website:

<https://www.baofengradio.com>

When programming this radio for the first time, it is recommended you first READ the radio with the software and then save this file for future reference as it contains the default programming and settings. In addition, after you READ this radio with software, first make you programming and frequency changes, and then write the edited file to your radio.

You will need the programming cable to connect your radio to your computer for programming.

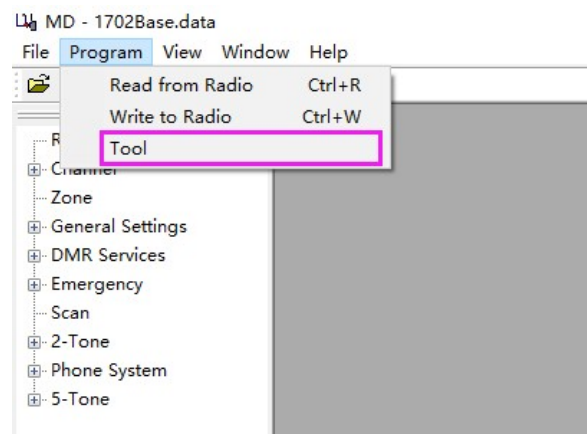
To perform a firmware upgrade, press the '#' key, then turn on the power and volume switches to enter firmware upgrade mode.

1. Install CPS Programming Software

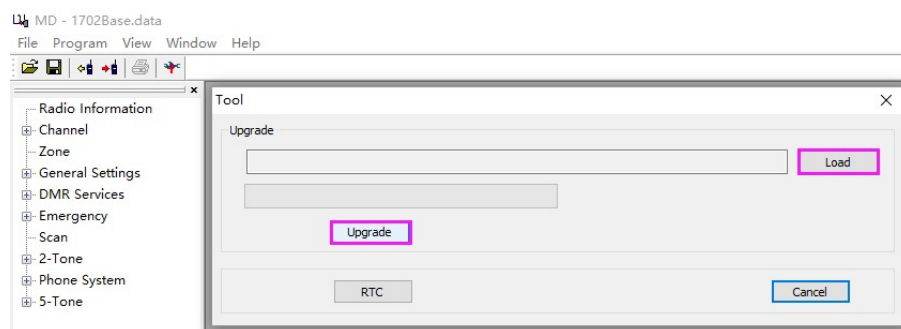
- 1) Double-click and run the CPS DM-1702 (English) v1.00.55.exe file;
- 2) Click “NEXT” to install the CPS programming software.

2. Firmware Update

- 1) Connect the machine to the computer using the programming cable.
- 2) Open the CPS DM-1702 programming software and open the firmware upgrade tool via “Program -> Tool”.
- 3) Press and hold the ‘#’ button to turn on the light, then the green light will be on.
- 4) Click on the upgrade software "Load" and load the upgrade package.
- 5) Click “Upgrade” of the upgrade software and wait for the upgrade to succeed.
- 6) Close and reopen.



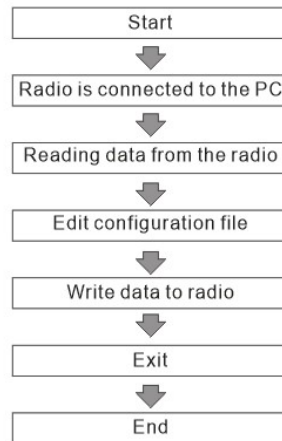
Picture 1: Firmware update tool



Picture 2: Firmware update

3. Programming the DM-1702

The process of configuring the radio using CPS write frequency software is as follows.



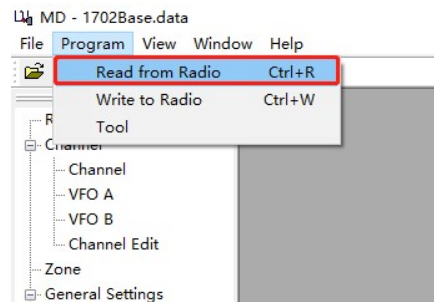
Picture 2: Configure the radio process

If you have a radio configuration file locally, you can also open the local configuration file in CPS for configuration and then write it to the radio (write frequency).

Before programming your radio, read the current information from the radio to your PC to create an initial CPS template and at the same time backup the factory data for future use.

3.1 Read data

When reading data from the DM-1702 or writing data to the DM-1702, the software provides a variety of operational paths:



Picture 2: Read data

To read in all frequency settings as well as further settings from your DM-1702 radio, use this option.

3.2 Write data

Whenever you have made your changes and additions to the settings of your DM-1702 radio use this option to write your settings to the radio.

3.3 Read/Write Contacts

The DMR Contact List can hold information on over 100K DMR IDs. A transfer from or to your DM-1702

radio may take up to 5 minutes.

3.3.1 Import DMR ID database to your CPS

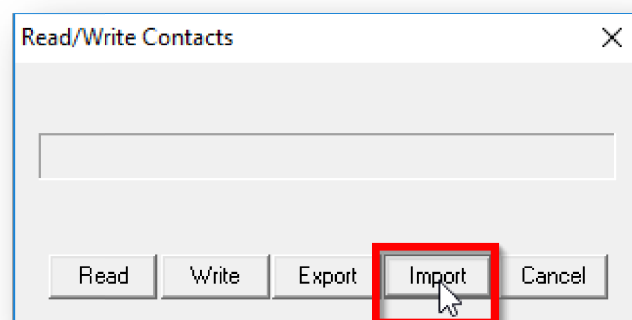
You can choose to download the full DMR ID database according to your needs. With its current 120k+ entries, the list contains almost all amateur radio DMR ID numbers in the world. You can find the DMR database at various sites, such as <https://ham-digital.org/status/>.

Make sure that your CSV-file looks similar to the following picture.

```
Radio ID,CallSign,Name,NickName,City,State,Country,;  
1020000,VE1W,W, , , Canada, DMR;  
1020001,VE1M,M, , , Canada, DMR;  
1020002,VE1G,G, , , Canada, DMR;  
1020003,VE1Y,Y, , , Canada, DMR;  
1020004,VE1JN,J, , , Canada, DMR;
```

Picture 3: Content of CSV-File ready for import to CPS

If you have double checked the format of your CSV file you may then import it to your CPS



Picture 4: Import DMR ID database as CSV file

3.3.2 Transfer imported DMR database to DM-1702

After you have successfully imported the DMR ID database to your CPS you may then transfer it to your DM-1702 radio.

- Click on 'Program' -> 'Read/Write contacts'
- Select 'Write' within the popup window

Due to the size of the database, loading data may take more than 5 minutes.

2.3.3 Transfer DMR database from DM-1702 to PC

Of course it is also possible to transfer the DMR ID database stored within your DM-1702 to your PC.

- Click on 'Program' ->'Read/Write contacts'
- Select 'Read' within the popup window. .

Due to the size of the database, loading data may take more than 5 minutes.

2.3.4 Export DMR database from CPS to PC

Finally you may even create a CSV file of the DMR database you just read from your DM-1702 using this last option of the 'Read/Write contacts' menu.

- Click on 'Program' ->'Read/Write contacts'
- Select 'export' within the popup window. .

Note:

Bare in mind that you need to read the DMR database from the DM-1702 radio to the CPS before using the export functionality.

3. General setting

The DM-1702 radio supports quite a bunch of general settings. To get there use 'Edit' -> 'General Setting'

The screenshot shows the 'General Setting' menu of the DM-1702 radio. The settings are organized into several sections:

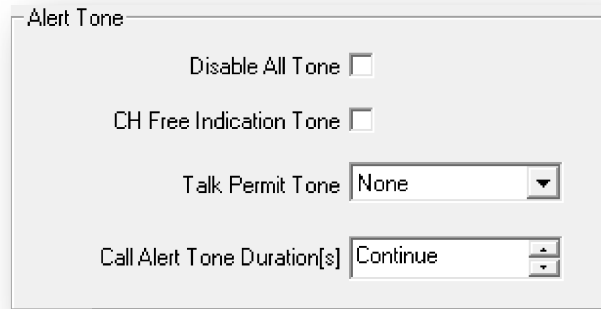
- Save:** Save Preamble ☒, Save Mode Receive ☒.
- Alert Tone:** Disable All Tone ☐, CH Free Indication Tone ☐, Talk Permit Tone: None (dropdown), Call Alert Tone Duration[s]: Continue (dropdown).
- Scan:** Scan Digital Hang Time[ms]: 1000 (numeric), Scan Analog Hang Time[ms]: 1000 (numeric).
- Lone Worker:** Lone Worker Response Time[min]: 1 (numeric), Lone Worker Reminder Time[s]: 10 (numeric).
- Power On Password:** Password and Lock Enable ☐, Power On Password: 00000000 (text).
- Voice Announcement:** CH Voice Announcement ☒, Voice Announcement: English (dropdown).
- Radio Name:** (text field).
- Radio ID:** 1234 (text field).
- Monitor Type:** Open Squelch (dropdown).
- VOX Sensitivity:** 3 (dropdown).
- TX Preamble Duration[ms]:** 600 (numeric).
- RX Low Battery Interval[s]:** 125 (numeric).
- Channels Hang Time[ms]:** 3000 (numeric).
- PC Programming Password:** (text field).
- Radio Program Password:** (text field).
- Back Light Time[s]:** Always (dropdown).
- Set Keypad Lock Time[s]:** Manual (dropdown).
- Freq/Channel Mode:** Channel (dropdown).
- Model Select A:** MR (dropdown).
- Model Select B:** MR (dropdown).
- Time Zone:** UTC +8:00 (dropdown).
- Diable All LEDs:** ☐.
- Group Call Match:** ☒.
- Private Call Match:** ☒.
- Talkaround:** Group Call Hang Time[ms]: 3000 (numeric), Private Call Hang Time[ms]: 4000 (numeric).
- Intro Screen:** Intro Screen: Picture (dropdown), Intro Screen Line 1: (text field), Intro Screen Line 2: (text field).

Picture 5: General Setting

The following topics described those parameters used more often.

3.1 Alert Tone

The four parameters refer to tone prompts given in certain cases.



Picture 6: Alert Tone

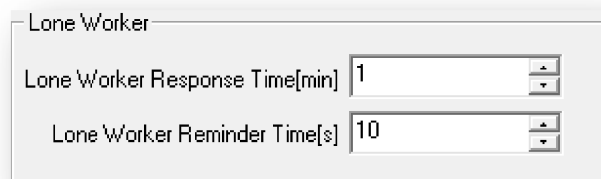
If you check 'Disable All Tone', you will not hear any prompts, even if you check 'CHFree Indication Tone' or 'Talk Permit Tone'. Both options would no longer be supported.

CH free indication tone: Indicates if the current channel is not transmitting and receiving, indicating a free channel.

Talk Permit tone: This alert tone sounds after the Push-to-Talk (PTT) button is pressed and the radio is able to transmit on the channel. This is to prompt the user to begin speaking.

3.2 Lone Worker

Lone Worker: This functionality is for establishing a convenient rescue. 2 operators have both started their separate work. If one of them does not perform any action during the set time (including pressing the PTT button, turn the knob) or pressing the button light), the other one will receive an alarm tone within a certain time

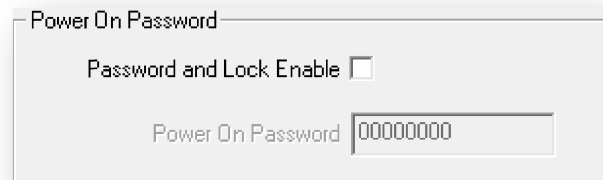


Picture 7: Lone Worker

With the corresponding settings, this function may be adjusted to the personal needs.

3.3 Power On Password

If you check 'Password and Lock Enable', it will be required to enter the specified 'Power On Password' in order to power on the radio.



Picture 8: Power On Password

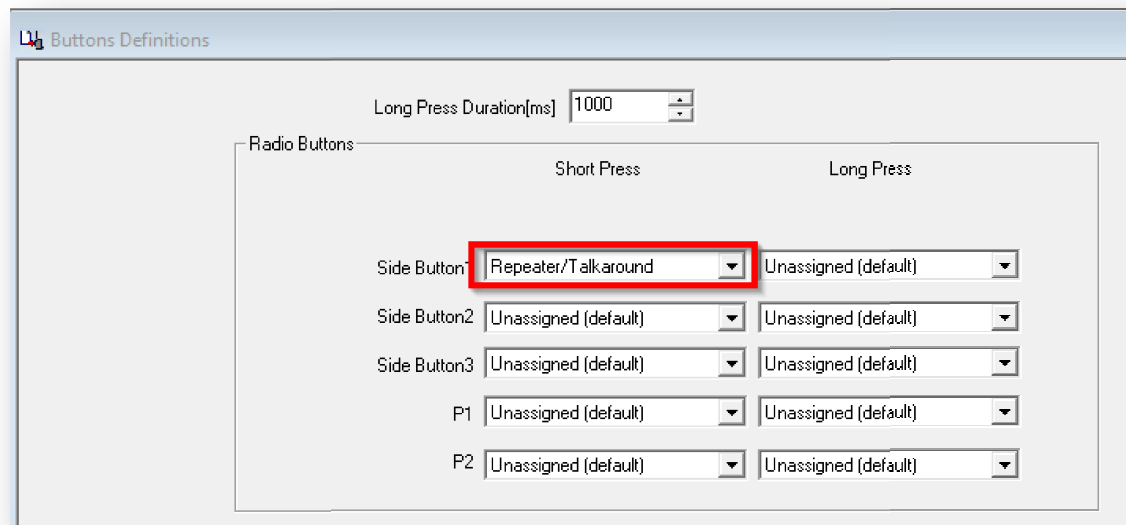
4. Basic settings

There are a few settings that do require special attention.

- If you set PC programming password, you must remember this password. If you forget it, there will be no way to retrieve it.
- You need to check the relationship between your local time and UTC to get a better time zone, or you can enter the time directly in the radio.

4.1 Talkaround

When the talkaround function is activated, the transmission and reception frequencies are exchanged with each other. You would only activate that function if you can no longer reach the repeater you had been working on, but knowing that the other station is in direct reach.

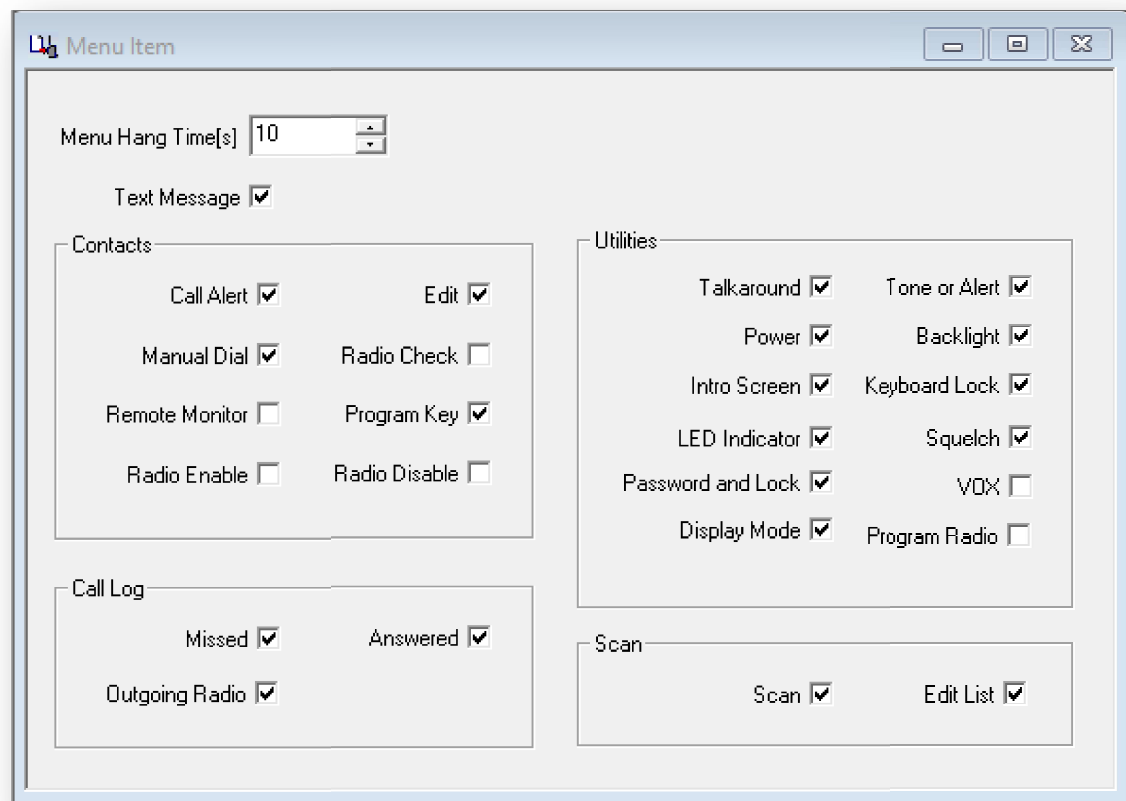


Picture 9: Assign Talkaround

The function may be assigned to one of the five programmable function keys. Side Button 1 is the top most one just above the PTT key. Side button 2 is the one with the single dot and Side Button 3 is the one with the double dots. P1 and P2 are above the numerical keypad.

5. Menu Item

Often not all those menus that are available are really required by the user. Thus in order to ease operation, you may disable certain menus to your personal requirements. Using 'Edit' -> 'Menu Item' you navigate to the corresponding configuration page within the CPS.



Picture 10: Menu Item

Those menu functions checked will later be displayed in the various menus of the DM-1702 radio. Those not checked will not be displayed and not become accessible on the radio.

6. Button Definitions

There are various buttons definitions possible:

- Radio Buttons
- One Touch Access
- Number Key Quick Contact Access

6.1 Radio Buttons

The radio buttons may even have two different functions assigned. One of the functions is been activated on a 'Short Press' of the corresponding keys whereas the other one requires a 'Long Press'. The 'Long Press Duration(ms)' defines the time period required to keep the key pressed in order to activate this 'Long Press' function.

Long Press Duration[ms] 1000

	Short Press	Long Press
Side Button1	Monitor	One Touch Access 1
Side Button2	Power Select	One Touch Access 2
Side Button3	Monitor	One Touch Access 3
P1	Scan On/Off	Battery Indicator
P2	1750Hz	Zone Select

Picture 11: Radio Buttons

With the three side keys and the two keys named P1 and P2 you have a total of 5 programmable keys. Each of the keys has a function activated on 'Short Press' and another one activated on 'Long Press', resulting in a total of 10 different functions being directly accessible.

Those are your options:

- Unassigned (default)
- All Alert Tones On/Off
- Emergency On
- Emergency Off
- Power Select
- Monitor
- One Touch Access 1...6
- Repeater/Talkaround
- Scan On/Off
- Tight/Normal Squelch
- Privacy On/Off
- VOX On/Off
- Zone Select
- Battery Indicator
- Lone Work On/Off
- Record On/Off (firmware)
- Record Playback (firmware)
- Delete All Record (firmware)
- 1750Hz
- Switch Up/ Down screen
- Right Key
- Left Key

Remark:

Those functions related to recording of transmissions are currently not available.

6.2 One touch access

There is a total of six 'One Touch Access' options. Each of them with its own 'Mode', 'Call', 'Call Type' and 'Message/Encode'

One Touch Access				
No.	Mode	Call	Call Type	Message/Encode
1	Digital	Contact1	Text Message	Hello
2	Digital	Contact1	Text Message	Hello
3	Digital	Contact1	Text Message	Hello
4	Digital	Contact1	Text Message	Hello
5	Digital	Contact1	Text Message	Hello
6	Digital	Contact1	Text Message	Hello

Picture 12: One Touch Access

- **Mode:** select either 'Digital' or 'Analog'
- **Call:** If you select analog mode, this option is ignored. If you select digital mode, it will define the 'Digital Contact' to be used.
- **Call type:** In "Analog" mode, there will be four types of DTMF for you to choose from: 'DTMF-1','DTMF-2','DTMF-3' and 'DTMF-4'. In 'Digital' mode, you can choose between 'Call' and 'Text Message'.
- **Message/Encode:** If 'DTMF-1' has been selected as 'Call Type', this option defaults to encode '1'. If 'Text Message' has been selected as 'Call Type', you will be able to choose one of the preset SMS within the menu 'Text Message' you have defined already.

6.3 Number key quick contact access

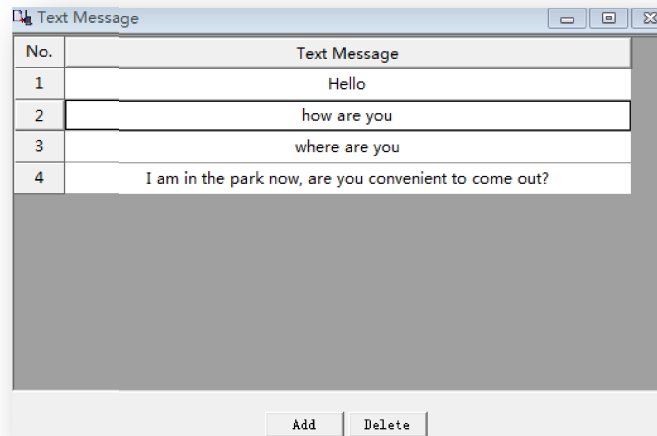
The numerical keypad of your DM-1702 has 10 numerical keys, numbered 0..9. Each of those keys can be connected to one of the defined digital contacts.. In order to access one of those assigned digital contacts, press and hold the corresponding numerical key.

Number Key0	None
Number Key1	None
Number Key2	None
Number Key3	None
Number Key4	None
Number Key5	None

Picture 13: Number Key Quick Contact Access

7. Text Message

You can edit the quick text messages that you use frequently. After you save them to your DM-1702 radio, they all will be available in your 'Drafts'-folder. You can easily send them to the people you need to send without additional editing. Select 'Edit' -> 'Text Message' to get to the appropriate configuration page.



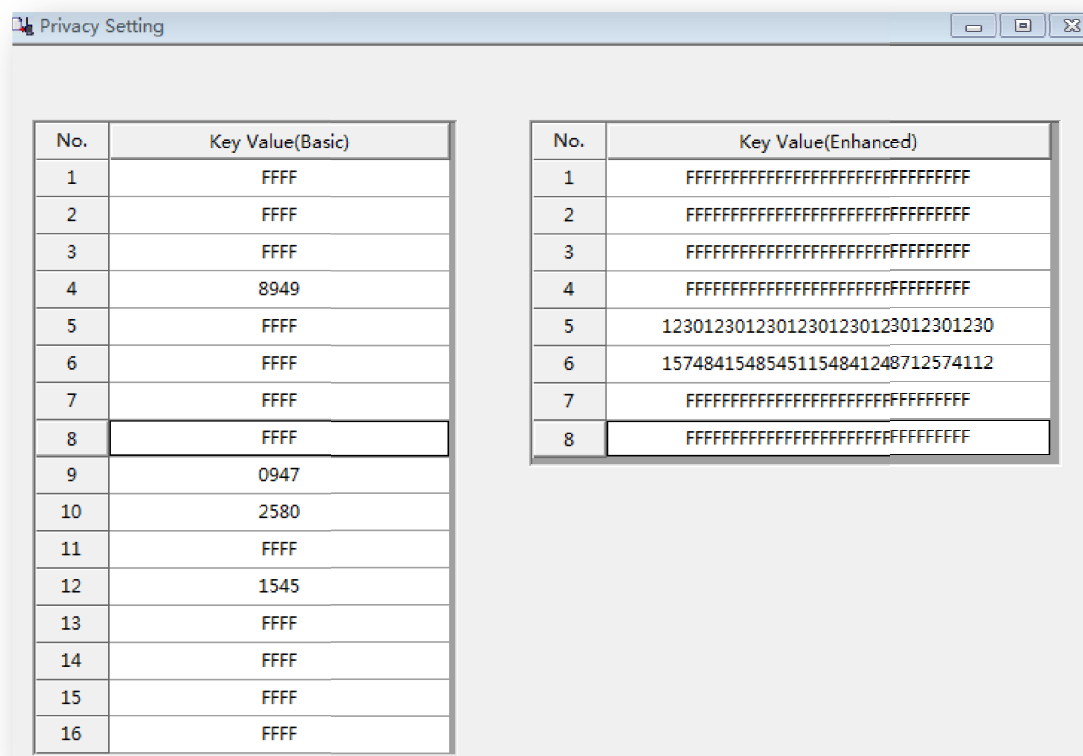
Picture 14: Text Message

8. Privacy Setting

Digital encryption is also supported by your DM-1702 radio. You can set the corresponding digital encryption password. The person you are talking to can only hear your voice by setting the same encryption password as you, avoiding other people hearing your call. Select 'Edit' -> 'Privacy Setting' to get to the appropriate configuration page.

Hint:

Encryption might not be allowed in your network.



The screenshot shows a window titled "Privacy Setting" with two tables side-by-side. The left table is titled "Key Value(Basic)" and has 16 rows. The right table is titled "Key Value(Enhanced)" and has 8 rows. Both tables have a "No." column and a "Key Value" column. The "Key Value(Basic)" table contains hexadecimal values, with row 4 having the value "8949". The "Key Value(Enhanced)" table contains longer hexadecimal strings, with row 5 having the value "12301230123012301230123012301230" and row 6 having the value "15748415485451154841248712574112".

No.	Key Value(Basic)
1	FFFF
2	FFFF
3	FFFF
4	8949
5	FFFF
6	FFFF
7	FFFF
8	FFFF
9	0947
10	2580
11	FFFF
12	1545
13	FFFF
14	FFFF
15	FFFF
16	FFFF

No.	Key Value(Enhanced)
1	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
2	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
3	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
4	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
5	12301230123012301230123012301230
6	15748415485451154841248712574112
7	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
8	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

Picture 15: Privacy Setting

- Key Value(Basic): consisting of four hexadecimal digits
- Key Value(Enhanced): consisting of 32 hexadecimal digits

9. Digital Emergency System

The availability of a digital emergency system depends on the digital network used. Select 'Edit' -> 'Digital Emergency System' and selected the system to edit.

Digit Emergency System

Remote Monitor Duration[s] 10

Tx Sync Wakeup TOT[ms] 150

Tx Wakeup Message Limit 3

☒ Radio Disable Decode

☐ Remote Monitor Decode

☒ Emergency Remote Monitor Decode

Emergency System

System Name System1

Alarm Type Regular

Alarm Mode Emergency Alarm

Revert Channel Selected

Impolite Retries 15

Polite Retries 5

Hot Mic 10

1 of 1

<- <<- ->> ->| Add Delete

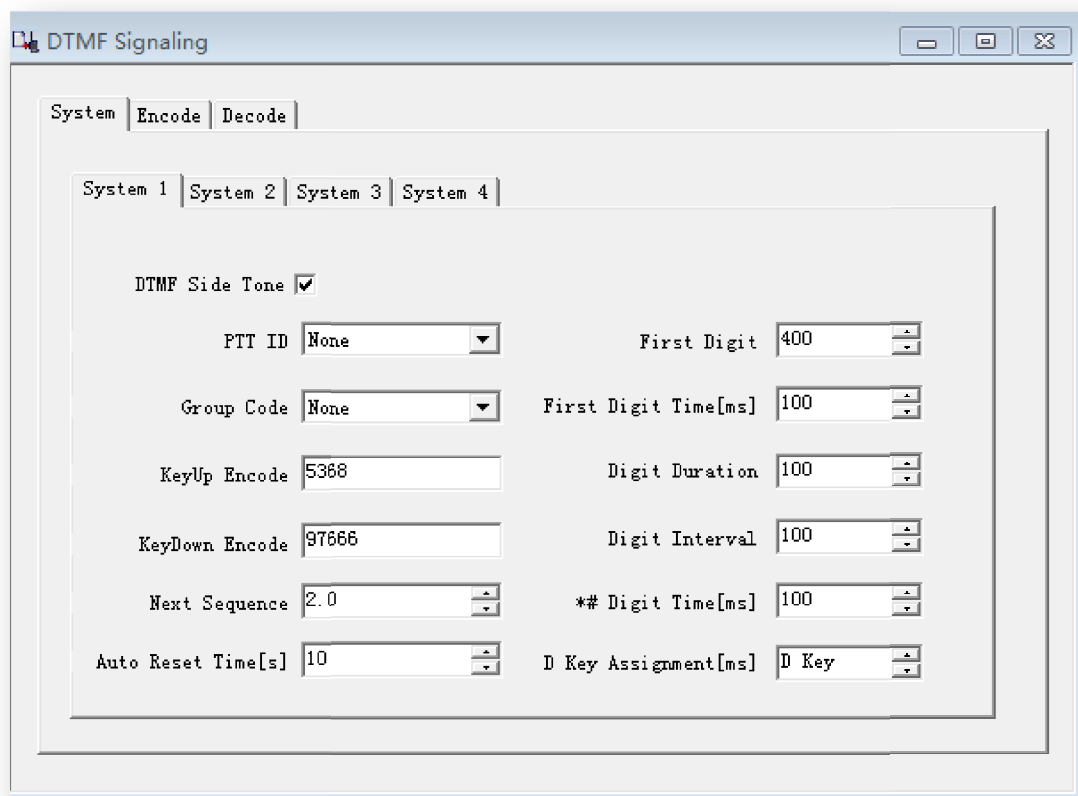
Picture 16: Digital Emergency System

- System Name** This entry displays the name of the system. The user can enter up to 8 characters. Valid characters include letters, numbers, spaces, and special characters.
- Alarm Type** An alarm is a non-voice signal that triggers an alert indication on another radio. This feature specifies the behavior of the initiating radio's alarm when the emergency button is pressed.
- Alarm Mode** Defines the radio's behavior when the radio's emergency button is pressed.
- Impolite Retries** An impolite transmission is a transmission that occurs even when there is activity on the current channel. The radio tries a number of impolite transmissions to get an acknowledgement and then goes on to try a number of polite transmissions. This feature sets the number of attempts to transmit an emergency alarm impolitely.
- Polite retries** A polite transmission is a transmission that occurs only when there is no activity on the current channel. The radio tries a number of impolite transmissions to get an

acknowledgement before trying a number of polite transmissions. This feature sets the number of attempts to transmit an emergency alarm politely.

10. DTMF Signaling

If the DM-1702 is used in a system that makes use of DMTF-signaling, certain settings need to be applied to the radio. Select 'Edit' -> 'DTMF Signaling' to get to the appropriate configuration page.



Picture 17: DTMF Signaling

DTMF side tone When the DTMF code word is been sent, the speaker issues the corresponding DTMF tones.

PTT ID Selects 'None', 'Pre Only', 'Post Only' or 'Pre & Post'.

Group Code You can use the DTMF characters 'A', 'B', 'C', 'D', '*', or '#' to set up a group called 'universal character code'. If the receiver receives a valid ID code and one or all of

its digits are replaced by the 'universal character' group call code, the call will become decoded.

KeyUp Encode	The analog channel transmits the PTTID corresponding to the DTMF code, as the channel is been activated by pressing the PTT.
KeyDown Encode	The analog channel transmits the PTTID corresponding to the DTMF code, as the channel is been deactivated by releasing the PTT.
Auto Reset Time	When the signal is decoded correctly, the automatic reset timer resets the DTMF decoder and mutes the speaker if there is no communication activity within a certain period of time. You do not need to perform a manual reset (using the monitor key). The timer starts running as the carrier drops.
First Digit Time	Allows you to set the delay time from the start of transmission to the first DTMF digit (factor that takes the decoder start time into account). Increasing this time interval is the same as adding 'First Code Duration'.
Digit Duration	Allows you to set the delay time from the start of the launch to the first DTMF digital transmission (considering the factors that start the decoder's time). Increasing this interval is the same as increasing the duration of the first code.
*# Digit Time [ms]	This parameter is extending the # * sound transmission time. In some systems, these two codes must be set longer than the numerical codes.

11. VFO Mode

The VFO mode is the similar to the normal channel mode in terms of the various parameters. Select 'Edit' -> 'VFO Mode' to get to the appropriate configuration page.

The screenshot shows the 'VFO Mode' configuration window with tabs for 'VFO A' and 'VFO B'. The 'VFO A' tab is active. The window is divided into three main sections: 'Digital/Analog Data', 'Digital Data', and 'Analog Data'.

Digital/Analog Data:

- Channel Mode: Analog
- Band Width: 25kHz
- Squelch: Normal
- RX Frequency(MHz): 155.12500
- TX Frequency(MHz): 155.12500
- Admit Criteria: Always
- RX Ref Frequency: Low
- TX Ref Frequency: Low
- TOT[s]: 60
- TOT Rekey Delay[s]: 0
- Power: High
- Step: 2.5K
- Auto Scan: ☐
- Rx Only: ☐
- Lone Worker: ☐
- VOX: ☐
- Allow Talkaround: ☐

Digital Data:

- Private Call Confirmed: ☐
- Emergency Alarm Ack: ☐
- Data Call Confirmed: ☐
- Allow Interrupt: ☐
- DCDM Switch: ☐
- Leader/MS: MS
- Emergency System: None
- Contact Name: WW
- Group List: GRP-TS1
- Color Code: 1
- Repeater Slot: 1
- In Call Criteria: Always
- Privacy: None
- Privacy No.: 1

Analog Data:

- CTCSS/DCS Dec: None
- CTCSS/DCS Enc: None
- Rx Signaling System: Off
- Tx Signaling System: Off
- QT Reverse: 180
- Non-QT/DQT Turn-off Freq: 55.2Hz
- Display PTT ID: ☐
- Reverse Burst/Turn-off Code: ☒
- Decode 1: ☐
- Decode 2: ☐
- Decode 3: ☐
- Decode 4: ☐
- Decode 5: ☐
- Decode 6: ☐
- Decode 7: ☐
- Decode 8: ☐

Picture 18: VFO Mode

The displayed mode can be set in the overall general settings.

The screenshot shows the 'General Setting - VFO' window with three dropdown menus:

- Freq/Channel Mode: Freq
- Model Select A: VFO
- Model Select B: MR

Picture 19: General Setting - VFO

12. Prepare for DMR operation

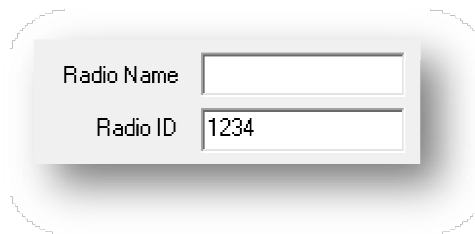
12.1 Request a valid DMR RADIO ID

To operate on the DMR network, you must register for a DMR identification number. This can be done at <https://www.radioid.net/> or <https://register.ham-digital.org/>, depending on where you live.

Normally new DMR IDs are issued within 24 hours.

Your DMR ID can now be entered into the CPS.

- Click on 'Edit' -> 'General settings'

A screenshot of a software window for configuring a radio. It contains two input fields. The first field is labeled 'Radio Name' and is empty. The second field is labeled 'Radio ID' and contains the number '1234'. The window has a light gray background and a thin border.

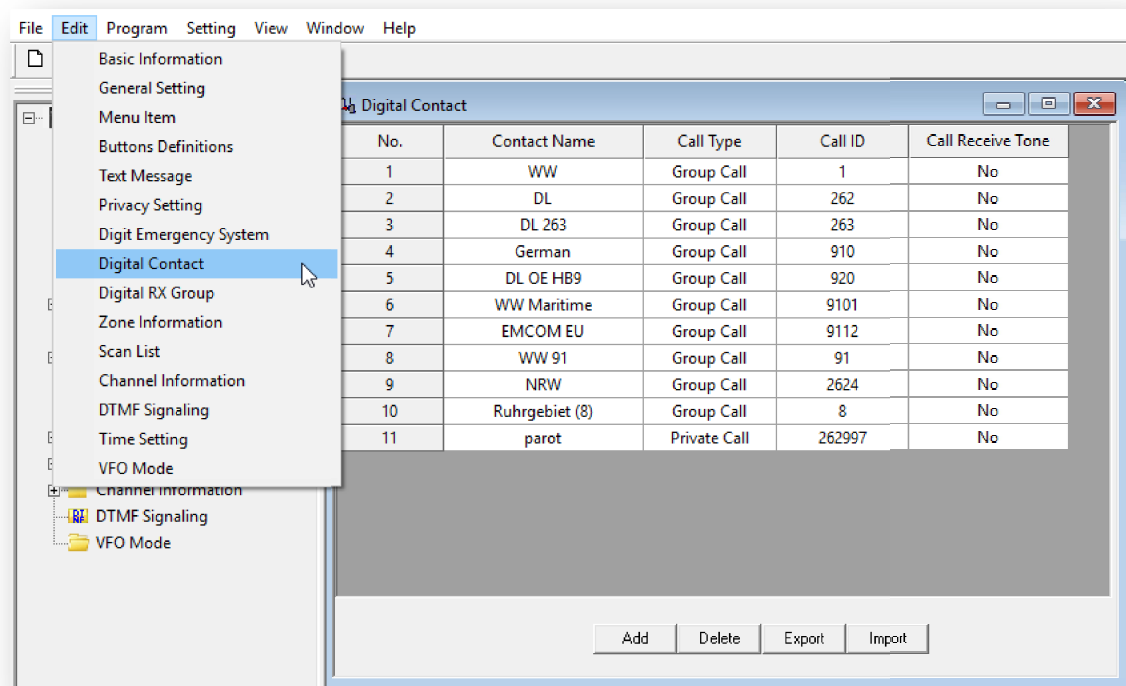
Picture 20: store your call sign and your DMR Radio ID

Note:

Never ever operate the radio using an ID that is not issued to yourself. Within amateur radio networks this may result in losing your license.

12.2 Digital Contacts (besides those of the DMR database)

Up to a maximum of 10.000 digital contacts can be stored separately from the DMR database. However, if the DM-1702 is used within an amateur radio DMR network such as Brandmeister (BM), those digital contacts would normally rather be used for so called talk groups (TG). Select 'Edit' -> 'Digital Contact' in order to work on those digital contacts.



Picture 21: Digital Contacts

No	entry within the list of digital contacts (up to 10k entries)
Contact Name	Name to be displayed for this digital contact
Call Type	You may select between: <ul style="list-style-type: none"> • Group Call • Private Call • All Call
Call ID	ID for a digital call member or talk group. This ID is used to identify and communicate with a target radio (DMR ID) or group of radios (TG) depending on the call type
Call Receive Tone	An alert tone sounds on the receiving radio prior to unmuting during a 'Group Call', 'Private Call' or 'All Call'. This feature is set on a per-call basis.

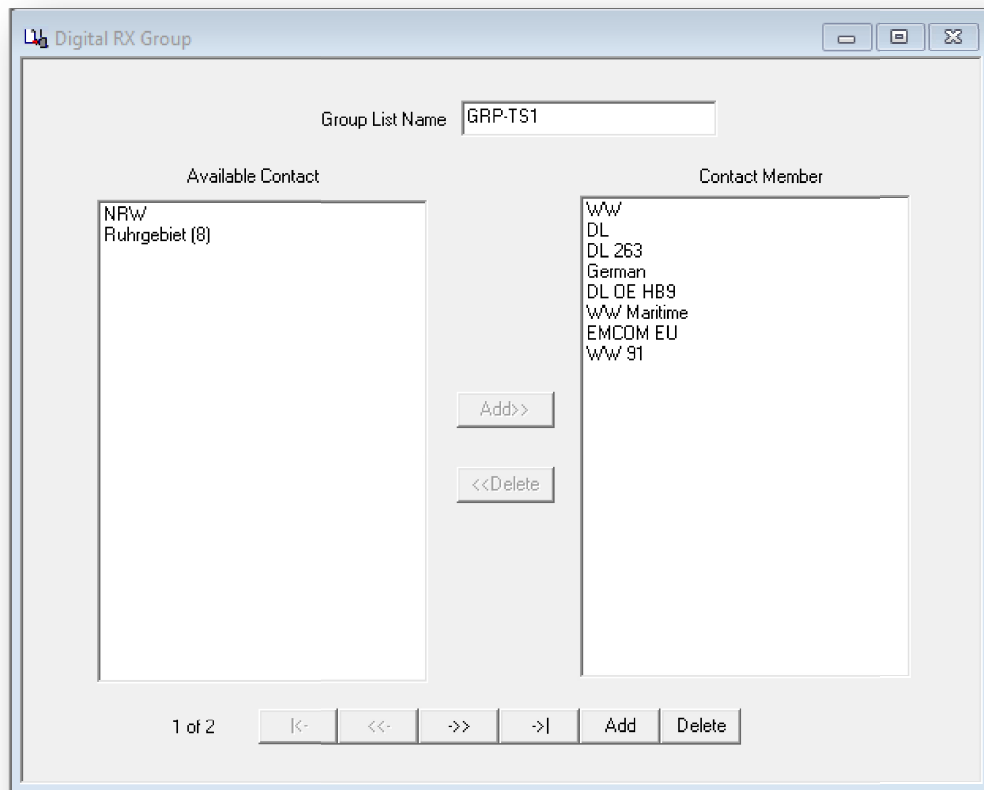
12.3 Digital RX Group Call

You will require a so called 'Digital RX Group' for your Channel settings. Creating such a group allows you to put your configured 'Contacts' into logical groups so they can be contacted.

- Up to 250 individual Digital RX groups can be created and named to identify each group.
- Each group can contain as few or as many contacts as convenient.

- groupssould be named according to their group members (Digital Contacts).
- Only contacts set as group calls can be added to a group

To work on such groups use 'Edit' -> 'Digital RX group'. A typical group may look like shown in the next picture



Picture

22: Typical Digital RX group

13. Channel settings

The DM-1702 offers up to 3000 channels for UHF and VHF. To start double click on the first line No.1 to open the Channel Information window for that channel:

Channel Information

Digital/Analog Data

Channel Mode

Analog

Channel Name

Channel3

Band Width

12.5kHz

RX Frequency(MHz)

400.00000

Scan List

None

TX Frequency(MHz)

400.00000

Squelch

Normal

Admit Criteria

Always

RX Ref Frequency

Low

Auto Scan

TX Ref Frequency

Low

Rx Only

TOT[s]

60

VOX

TOT Rekey Delay[s]

0

Allow Talkaround

Power

High

Digital Data

Private Call Confirmed

Emergency Alarm Ack

Data Call Confirmed

Allow Interrupt

DCDM Switch

Leader/MS

MS

Emergency System

None

Contact Name

None

Group List

None

Color Code

1

Repeater Slot

1

In Call Criteria

Always

Privacy

None

Privacy No.

1

Analog Data

CTCSS/DCS Dec

None

CTCSS/DCS Enc

None

Rx Signaling

Off

Tx Signaling System

Off

QT Reverse

180

Non-QT/DQT Turn-off Freq

None

Decode 1

Decode 2

Decode 3

Decode 4

Decode 5

Decode 6

Decode 7

Decode 8

Picture 23: Channel Information

Let's have a very short explanation of all those fields:

Channel name	The name of the channel (should be unique)
Receive Freq	the VHF or UHF frequency
Transmit Freq.	the VHF or UHF frequency
Channel mode	Select 'analog' and 'digital'
Band Width	Select the bandwidth for transmission
Scan List	Select which Scan List(s) will be scanned
squelch	Sets the encoding type that the radio will transmit on that channel
Admit criteria	Selects PTT transmit criteria – typically same ColorCode
Long worker	Check if the 'alone' emergency function should be allowed
TOT	the radio can continuously transmit before a transmission is automatically terminated
VOX	Voice Operated Transmit)
Power	Select one of four levels 1W/2W/5W
Digital	
contact	Talk Group (TG) to be assigned to this channel
DMR/radio ID	Select which of the DMR ID's to use for this channel
Color code	Select which Color Code (CC) is related to this channel
slot	Select which slot (1 or 2) applies to this 'Channel'
Group list	If programmed, select the RX Group List
privacy	Select 'off', 'basic' or 'enhanced' to use for encryption.
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
RX signaling	Select off,DTMF-1,DTMF-2,DTMF-3,DTMF-4
TX signaling system	Select off,DTMF-1,DTMF-2,DTMF-3,DTMF-4
QT Reverse	Select 180,120,240 or silent
Non-QT/DQT turn-off Freq	Select none,259.3Hz,55.3Hz

Once completely filled in, click OK to save this Channel.

13.1 Spread Sheet Option

For large amounts of channel data, this may be a desired method as it allows cut and paste of large amounts of data. This is especially desired when adding multiple repeaters with similar configurations.

The current channel configuration can be exported to a csv file, enhanced and finally imported back to the CPS.

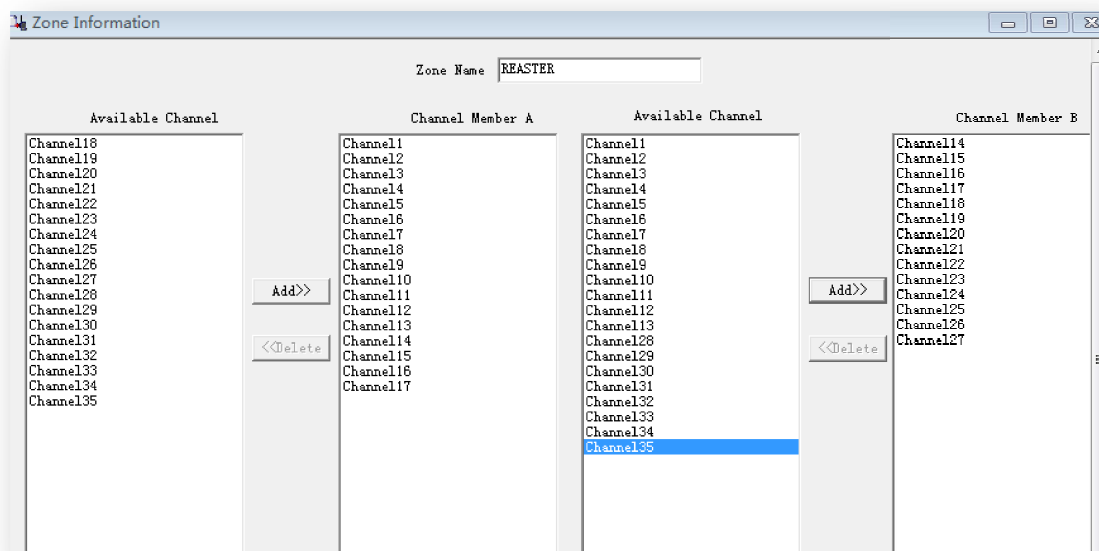
Hint:

Always save data files for recovery purposes.

14. Zones to bundle channels

Creating a 'Zone' allows you to put your previously configured 'channels' into logical groups so they can be accessed.

- Up to 250 individual zones can be created and named to identify each channel group.
- Each zone can contain as few or as many channels as convenient.
- Zones can be named to identify repeaters, functions, etc.
- The channels in each zone can be sorted or rearranged in any order.



Picture 24: Zone Information

15. Scan List

A 'Scan List' is a group of channels to be monitored when the 'Scan'-function is been activated using one of the programmable function keys. The DM-1702 has the capability of storing multiple scan lists per channel.

1. Select Scan List from the left column

2. Double click on the first open line
3. Enter a name for the new Scan List
4. Highlight the channel name you want to appear in the list and press 'Add>>'.

Up to 31 channels can be loaded into an individual list. You also have the ability to sort or rearrange the channels in this list. The scan list will later be assigned to a channel of your choice during the setup of a channel (see section on channels).

Picture 25: Scan List

Scan List Name	Name given to group of scanned channels
Available Channels	Will list the channels available to scan
Scan Channel Member	List of channels to be scanned
Priority Channel select	Select the priority channel or 'off'
Priority Channel 1	Sets which channel is priority 1
Priority Channel 2	Sets which channel is priority 2
Signaling hold time	Sets the amount of time that the radio waits on an analog scan list channel

when a carrier signal of sufficient amplitude is detected on the channel. This pause allows the radio to decode the analog system signaling data. If the decoded information is incorrect, the radio reverts to scan.

Priority sample time

Sets the duration that the radio waits, when in a call, before scanning the priority channels. If the call is taking place on a Priority 1 Channel, no scanning will take place. When scanning priority channels, the radio briefly mutes the current transmission. Increasing this interval improves the audio quality of the current transmission as fewer checks are done, but this also increases the chance of the radio missing out priority channel activity.

TX designated channel

This feature defines the conventional channel/ trunking personality on which the radio will transmit if the user presses the Push-to-Talk (PTT) button while the radio is scanning.

Note:

You can add the same channel to multiple scan lists.

16. Write data to radio

After you have completed all the above steps, you can write the data to the DM-1702 radio.