

NØGSG DMR Contact Manager

Radio Configuration Management Software for DMR Transceivers

End-User Documentation

Version 2.20

© 2015-2017 Tom A. Wheeler

tom.n0gsg@gmail.com

Terms of Use

This release of Contact Manager, hereafter referred to as the Software, has been expressly created to support the Amateur Radio DMR community, and is not designed for commercial application. Although the software is available for free download, it is not freeware! Amateur Radio users are granted an indefinite license to use the Software, subject to the terms below. Commercial users must contact us before using the Software.

By installing the Software on your computer, you automatically agree to the above, as well as the following:

1. You agree not to distribute the Software in any form (including modified executable code) and by any means of reproduction (including but not limited to distributed cloud storage, storage area networks, and web sites) to any third party without express written permission from us.
2. You agree not to disassemble or reverse-engineer the Software.
3. There is no limit to the number of machines you may install the Software on, however, this practice shall not be carried out in any manner that violates the conditions above.
4. You will make back-ups of all critical data sets prior to using the Software to work with them.

Disclaimer

The Software is provided 'as is' without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of fitness for a purpose, or the warranty of non-infringement. Without limiting the foregoing, we make no warranty that the Software will meet your requirements, the service provided by the Software will be uninterrupted, timely, secure or error-free, the results that may be obtained from the use of the Software will be effective, accurate or reliable, the quality of the Software will meet your expectations, or that any errors in the Software will be corrected.

The Software and its documentation could include technical or other mistakes, inaccuracies or typographical errors. We may make changes to the Software or documentation. We assume no responsibility for errors or omissions in the Software or its documentation.

In no event shall we be liable to you or any third parties for any special, punitive, incidental, indirect or consequential damages of any kind, or any damages whatsoever, including, without limitation, those resulting from loss of use, data or profits, whether or not we have been advised of the possibility of such damages, and on any theory of liability, arising out of or in connection with the use of this Software.

The use of the Software is done at your own discretion and risk and with agreement that you will be solely responsible for any damage to your computer system or loss of data that results from such activities. No advice or information, whether oral or written, obtained by you from us or from our web site shall create any warranty for the Software.

We respect the privacy of individuals. The Software contains no ad-ware, tracking devices, or any other hidden mechanisms that operate without the express permission of the user. The Software does not make any changes to your computer configuration. If you have downloaded the Software from any location other than our web site, we cannot guarantee that this will be true.

Contents

1. Introduction and Installation	1
2. Viewing, Editing, and Adding Contacts.....	5
3. Editing and Viewing Channels.....	13
4. Zone Management.....	18
5. Scan List Management	21
6. Structural Import across Codeplug Types.....	24

1.0 Introduction

NØGSG DMR Contact Manager is a custom-designed software package designed for use with Connect Systems CS700, CS701, CS750, CS751, CS800, CS801, Tytera MD380 series radios, as well as other radios that employ either the RDT or RDB format.

Contact Manager makes it easy to maintain channel, zone, contact and call group information in these radios. It is fully compatible with the DMR-MARC database system and allows instant codeplug updates from a wide variety of sources.

The software supports channel editing, importing, and exporting, as well as zone management. Associated contact information is always imported right along with channels whenever it's needed - - so that your imported channels work right the first time!

Codeplug contact and channel data can be freely exported to and from spreadsheets (CSV), as well as other codeplugs in the RDB and RDT formats. This allows contacts, channels, and zones to be freely moved between different types of codeplugs. Advanced edit, search, and sorting functions allow quick and easy visualization of codeplug contents.

Contact Manager features direct connectivity to the DMR-MARC online database. Worldwide call and user information is instantly available, and directly importable into any codeplug.

Contact Manager is a free-standing, complete program. It is not dependent upon Excel or other applications, and does not require them to operate.

1.1 Installation

To install the program, proceed as follows:

1. Download the Contact Manger executable program from our website. Place it on your desktop, if desired.

The program is fully self-contained and contains no additional components, such as DLL files.

2. If you've installed the program on your desktop, simply double-click its icon to run it. If you installed it elsewhere, hold down the **ALT** key, and while continuing to hold the **ALT** key, left-click on the Contact Manager executable file, and drag it to your desktop. This will create a shortcut to the application.

To remove the program from the computer, simply delete the Contact Manager executable file.

Contact Manager does not make any changes to your computer's configuration, so you can remove it at any time with no ill effects.

1.2 User Interface

Controller Manager has a standard Windows user interface as shown in Figure 1. Various controls appear on the interface depending upon the selected mode.

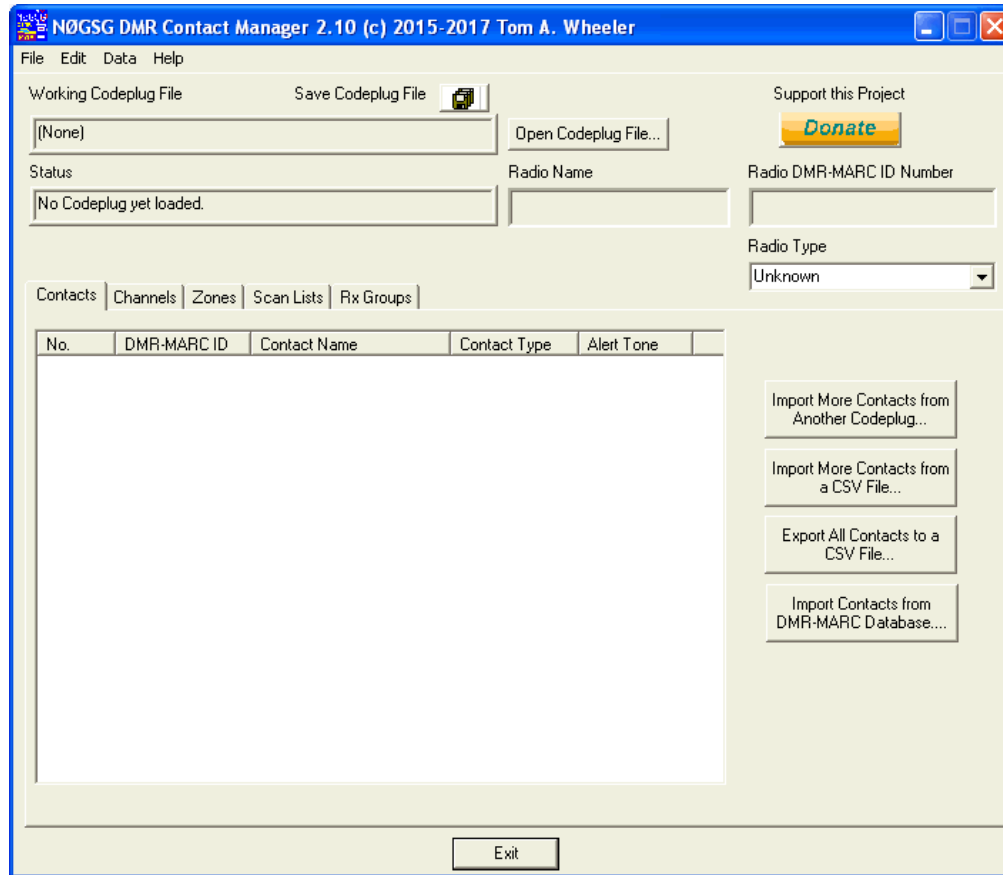


Figure 1: Contact Manager User Interface

There are four modes available in this version of the software. These modes are selected by clicking on each of the four tabs:

- Contacts Mode: The program displays the contacts contained within the codeplug, and allows manipulation of this information.
- Channels Mode: The channels within the codeplug are displayed and may be edited if desired.
- Zones and Scan Lists Modes: The zones and scan lists within the codeplug are displayed and may be edited.
- Group Lists Mode: This mode allows viewing and editing Group Lists.

IMPORTANT: None of the commands within Contact Manager will be operative until you load a valid codeplug by using "File --> Open Codeplug..." command, or clicking the Open Codeplug File... button.

At the top of the program window several key pieces of information are displayed:

- Working Codeplug File: Contact Manager displays the full Windows pathname of the file you've opened. If the field is blank, no codeplug is loaded.
- Radio Name: This is the text that is displayed by the CS700/CS701 upon power up. Many hams put their call sign in this field. It's limited to 16 characters.

The Radio Name value has no effect on the operation of your radio, other than displaying when the radio is first powered up. You can freely edit this field.

- Radio DMR-MARC ID Number: This is the unique, 24-bit global DMR-MARC global identifier for the radio. Once a valid codeplug has been opened, you can freely edit this field.
- Radio Type: This is the model number of your radio. There are several different manufacturers providing radios that use the RDT codeplug format. This window identifies the vendor class for the current codeplug. The program will display "Unknown" if it can't identify the vendor data within a codeplug.

Clicking the dropdown button will change the vendor ID information within the codeplug to a different vendor. This is only needed if you need to move codeplugs between radio vendors. *Be aware that specific features of individual models are not supported in Contact Manager - - these are supported in the CPS for each specific vendor. You cannot change between codeplug families (RDT, RDT).*

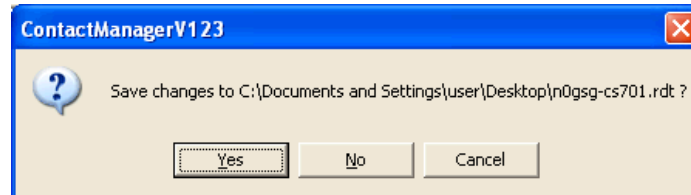
IMPORTANT: If you're creating a codeplug template to be shared by others (such as within a radio club), don't forget to update the RADIO NAME and DMR-MARC ID fields for each individual unit. Otherwise you'll have multiple units with the same identity, which can be very confusing!

TIP: If you are generating a distinct, new codeplug from a master template, you can easily do this as follows:

- Load the master codeplug.
- Make the necessary changes to the codeplug within Contact Manager.
- Under the *File* menu, choose "*Save As...*" (**F12** key) to save the codeplug under a new filename.

1.3 Document Persistence

Like most Windows applications, Contact Manager treats codeplugs as working documents and tracks the changes you've made to them. If you attempt to close a codeplug, open a new codeplug, or exit the program after making changes, you'll see the following dialog:



When this dialog appears, you have three options:

- Click **YES** to save the changes to the working codeplug and proceed with the operation you've selected.
- Click **NO** to discard the changes to the working codeplug and proceed with the next command.
- Click **CANCEL** to retain the codeplug in memory and cancel the command you've issued.

2.0 Viewing and Editing Contacts

Contact Manager supports a wide variety of operations with the contacts contained in codeplugs. These include:

- Viewing and sorting contacts according to any field.
- Editing information in individual contacts.
- Deleting and inserting contacts.
- Importing and exporting contacts from Comma Separated Value (CSV) text files, which can be generated and read by most spreadsheet software.
- Importing new contacts from the DMR-MARC worldwide DMR user database.

IMPORTANT: You should be aware that a very compact, relational database structure is used within each codeplug. In this structure, contact, channel, zone, and other data are interrelated and interdependent.

Making changes to contacts can impact the operation of channels that are configured to rely upon them. Contact Manager always makes the exact changes you specify, and automatically updates the codeplug's database to match.

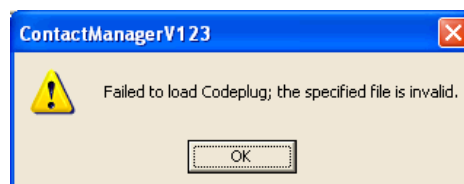
Be careful when enacting changes. You can easily "break" codeplugs!

2.1 Loading a Codeplug

Prior to performing any operations on a codeplug, it must first be loaded into Contact Manager. This can be done in two ways:

- Under the *File* menu, choose "*Open Codeplug...*" and select the file you want to open.
- Click the **Open Codeplug File...** button, and select the file.

Only valid RDT and RDB files can be opened. If there is a problem with the file, Contact Manager will display the following dialog box:



NOTE: The RDT and RDB file formats do not include check information (such as a CRC), and it is possible for defective files to be loaded into Contact Manager. Contact Manager will warn you if it finds inconsistencies in the codeplug data. Incorrect data fields are always set to a default, safe value.

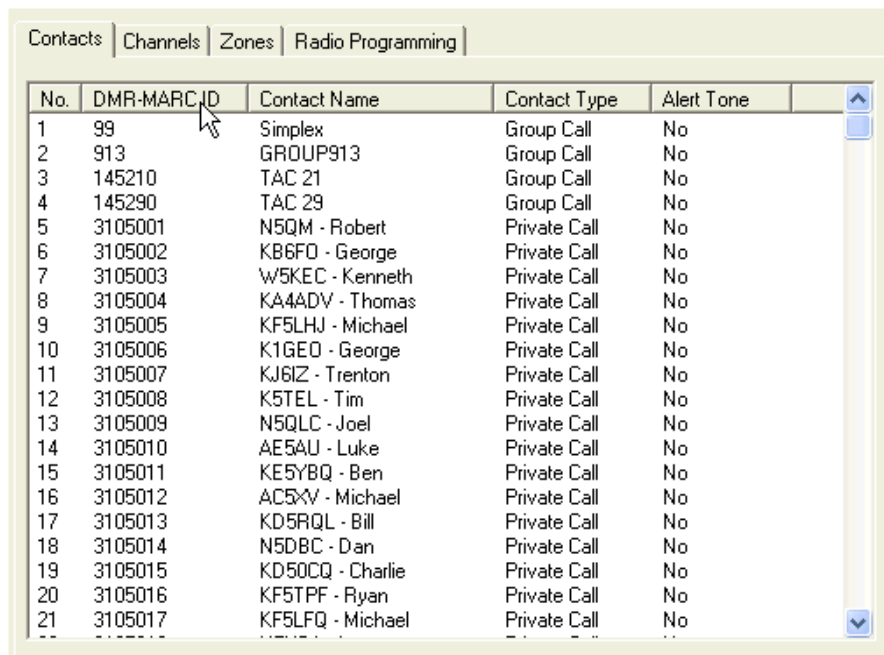
2.2 Viewing Contact Information

Once a valid codeplug file has been loaded, you may click the CONTACTS tab to see the contact information.

If the codeplug has no contacts, you'll simply see the message "# No Contacts #" within this pane.

2.3 Sorting Contacts

In order to sort contacts, click on the header for the appropriate column; the contacts will be automatically sorted and redisplayed. In Figure 2, the header row DMR-MARC ID has been clicked, and as a result, the contacts list is now sorted in that order.



No.	DMR-MARC ID	Contact Name	Contact Type	Alert Tone
1	99	Simplex	Group Call	No
2	913	GROUP913	Group Call	No
3	145210	TAC 21	Group Call	No
4	145290	TAC 29	Group Call	No
5	3105001	N5QM - Robert	Private Call	No
6	3105002	KB6FO - George	Private Call	No
7	3105003	W5KEC - Kenneth	Private Call	No
8	3105004	KA4ADV - Thomas	Private Call	No
9	3105005	KF5LHJ - Michael	Private Call	No
10	3105006	K1GEO - George	Private Call	No
11	3105007	KJ6IZ - Trenton	Private Call	No
12	3105008	K5TEL - Tim	Private Call	No
13	3105009	N5QLC - Joel	Private Call	No
14	3105010	AE5AU - Luke	Private Call	No
15	3105011	KE5YBQ - Ben	Private Call	No
16	3105012	AC5XV - Michael	Private Call	No
17	3105013	KD5RQL - Bill	Private Call	No
18	3105014	N5DBC - Dan	Private Call	No
19	3105015	KD5OCQ - Charlie	Private Call	No
20	3105016	KF5TPF - Ryan	Private Call	No
21	3105017	KF5LFQ - Michael	Private Call	No

Figure 2: Sorting on the DMR-MARC ID

Sorting is a very handy method for locating all contacts of a certain type (Group, Private, or All Call), or locating contacts by name.

NOTE: Sorting contacts changes the order they will appear in the codeplug and radio display. It has no other effect on the operation of the radio.

2.4 Editing Contacts

There are two ways of invoking the contact editor:

- Double-click the contact within the contact list;
- Right-click within the contact list and choose "Edit..." from the pop-up menu.

The Contact Editor dialog will appear as shown in Figure 3.

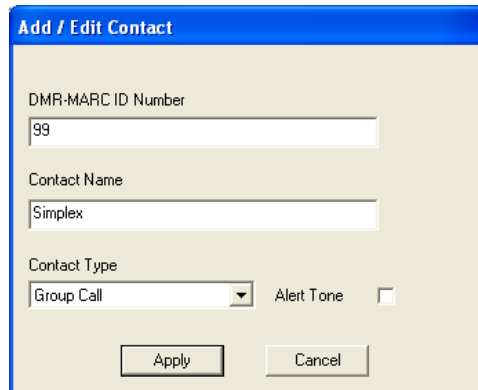
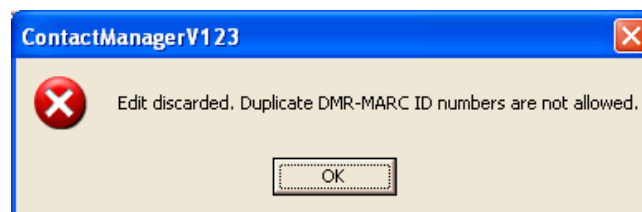


Figure 3: Contact Editor

Once you've made the necessary changes to the contact, click **Apply** to write the updated contact into the codeplug, or **Cancel** to discard the changes you've made.

Note that duplicate DMR-MARC ID numbers are not permitted in the codeplug. Contact Manager enforces this relationship; if you attempt to change a contact's DMR-MARC ID number to one that already exists within the codeplug, the following error message will appear:

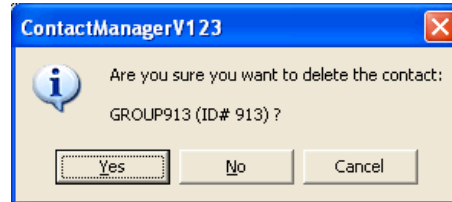


It is permissible to have duplicate contact names for contacts that are of Private Call type. This situation may arise when a ham has two or more distinct radios, each with the same personal identifier (call sign, name) but a different DMR-MARC ID number.

Contact names should not be duplicated for Group and All Call contacts, as this may cause the radio to use a wrong contact ID number when it makes an outgoing call.

2.5 Deleting Contacts

To delete a contact, simply right-click the contact within the list and choose "*Delete...*" from the pop-up menu. Contact Manager will ask for confirmation before deletion:



You can also delete groups of contacts by using **SHIFT** and/or **CTRL** clicks to highlight the desired set, then right-clicking within the contact list to bring up the context menu.

2.6 Exporting and Importing Contacts from CSV Files

To export all contacts to a CSV file for manipulation in other software, click the **Export All Contacts to a CSV File button**. Contact Manager will write a plain text file with all contacts in the current codeplug.

The format of exported contacts is as follows:

- One line in the CSV file is used for each contact. All fields are wrapped in quotes.
- The fields are DMR-MARC ID number, Contact Name, Contact Type, and Alert Tone.
- Contact Type is either Private, Group Call, or All Call. Alert Tone is either Yes or No.

```
"99","Simplex","Group Call","No"  
"913","GROUP913","Group Call","No"  
"145210","TAC 21","Group Call","No"  
"145290","TAC 29","Group Call","No"
```

The box above is an example of four exported contact records.

Please note that internal to the radio, contacts are represented in 16-bit Unicode; Contact Manager only supports ASCII and converts between the Unicode and UTF-8 (ASCII) versions of the data when importing and exporting contact data.

2.7 Importing Contacts from DMR-MARC

DMR-MARC is a worldwide database of DMR users, and Contact Manager has built-in ability to look up information within this database. This is very handy when looking up new contacts, as it eliminates manual copying and retyping of information (along with the potential errors that go along with that).

Your computer must be connected to the Internet for this feature to work.

To search and import contacts from DMR-MARC, click the **Import Contacts from DMR-MARC Database** button. The database search dialog of Figure 4, below, will appear.

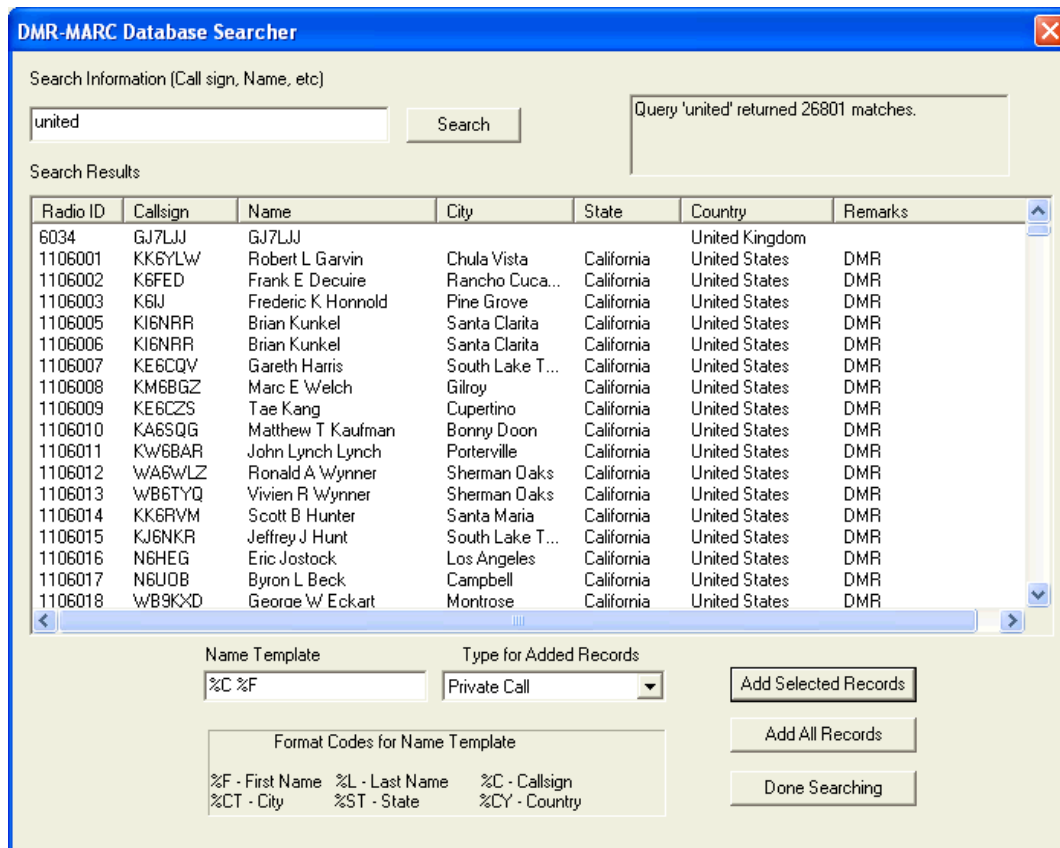


Figure 4: Database Search Dialog

The STATUS PANE is contained within the upper right-portion of this window. It displays a progress indicator if the DMR-MARC connection is in progress, and "Database is ready for searching" when full connectivity has been established.

If there is a problem with connecting to the DMR-MARC database, the status pane will display "Sorry, database not available." If you get this message, check your Internet connection. You will need to restart Contact Manager to retry the connection.

NOTE: Contact Manager waits up to 30 seconds to establish the DMR-MARC connection. It also tries all DMR-MARC host locations as defined in the current DNS records for the organization. Be aware that DMR-MARC is not guaranteed to be available 24/7, and during those periods, Contact Manager will be unable to connect with it.

To locate contacts in DMR-MARC, simply type the search terms into the SEARCH INFORMATION box. Contact Manager will instantly populate the SEARCH RESULTS with all registered contacts that match your search criterion.

In the example of Figure 4, the search term "United" was entered. This located all DMR-MARC registrant records containing the string "United," which would pull in all US stations, plus others containing that string. (This particular search requires less than a second to complete!)

Contact Manager uses a relaxed protocol for searching; it examines all fields for the information you request, and ignores the difference between upper and lower case letters. If you get too much information back from a search, simply add more information to the search string.

Search strings must have at least three characters for searches to be carried out.

Once the desired search results are displayed, they can be added to the contacts within the codeplug in three different ways:

- Double-click the search result that you want to add to the codeplug's contacts.
- Highlight the desired search results and click the **Add Selected Records** button.
- Click the **Add All Records** button to add all the search results to the codeplug.

Records being added to the contacts in the codeplug may be designated as Private, Group Call, or All Call by using the TYPE FOR ADDED RECORDS drop down box. Additionally, you may customize how the NAME field in the codeplug is populated by entering data within the NAME TEMPLATE:

- In Figure 4, contacts will be named with the ham operator's call sign (%C), followed by a dash (-), and their first name (%F).
- Any combination of format codes as shown in the dialog can be used to populate the NAME field.
- The NAME field is limited to 16 characters. Excess characters are truncated when the contacts are added to the resident codeplug.

When you are done adding records from DMR-MARC, simply click **Done Searching** to be returned to the program main window.

If desired, contacts can be sorted and edited as usual in the main window after importing as described in Section 2.3.

2.8 Copy and Paste Operations with Contacts

Contacts can be freely moved between codeplugs by using standard copy and paste commands within Contact Manager. To move selected contacts from one codeplug to another, proceed as follows:

- Open two copies of Contact Manager. Open the source codeplug in one copy, and the destination in the other. (You may open as many copies of Contact Manager as your computer's memory allows - - there is no limit.)

There is no limit to the number of copies of Contact Manager that you can open at one time, other than available memory in your computer.

- In the source codeplug, highlight the desired contacts, then right-click within the contacts list to bring up the context menu.

Choose "*Copy*" from this menu. The contacts are copied to the clipboard.

*TIP: You may also use the keyboard shortcut **CTRL** - C as in other Windows programs.*

- In the destination codeplug, paste in the desired contacts using any one of these methods:

1. From the *Edit* menu, select "*Paste*" to paste in the new contacts.
2. Right click within the contacts list and select "*Paste*" from the context menu.

*TIP: You may also use the keyboard shortcut **CTRL** - V to paste information as in other Windows programs.*

TIP: It does not matter which tab is open in Contact Manager when pasting, the program will automatically paste the information into the correct tables in the codeplug.

During a paste operation, Contact Manager checks for duplicate DMR-MARC ID numbers; if an incoming contact contains a duplicate number, it is automatically skipped.

After a paste, Contact Manager reports the number of contacts added, as well as the number of duplicates skipped, if any.

2.9 Importing from Other Codeplugs

Contact Manager allows contacts to be moved en-masse from one codeplug to another without opening two copies of the program.

If you want to pull all contacts from a different codeplug into the working codeplug, proceed as follows:

- Open the working codeplug.
- From the contacts pane, click the **Import More Contacts from Another Codeplug** button.
- Contact Manager will open a file selection dialog box; choose the codeplug containing the contacts you want imported.
- Click the **Merge ->** button in the file selection dialog box to complete the import.

As with paste, Contact Manager will report how many contacts were imported, and will reject duplicate DMR-MARC ID numbers.

TIP: You may import contacts from any type of codeplug without restriction (RDB or RDT), regardless of what type of codeplug you're working with. This is handy for moving contact information between different series of radios.

3.0 Editing and Viewing Channels

Contact Manager can be used to view, edit, and sort channels within any codeplug. To work with channels, click the CHANNELS tab in the main window; the display of Figure 5 will result. If there are no channels in the codeplug, "# No Channels #" will be displayed.

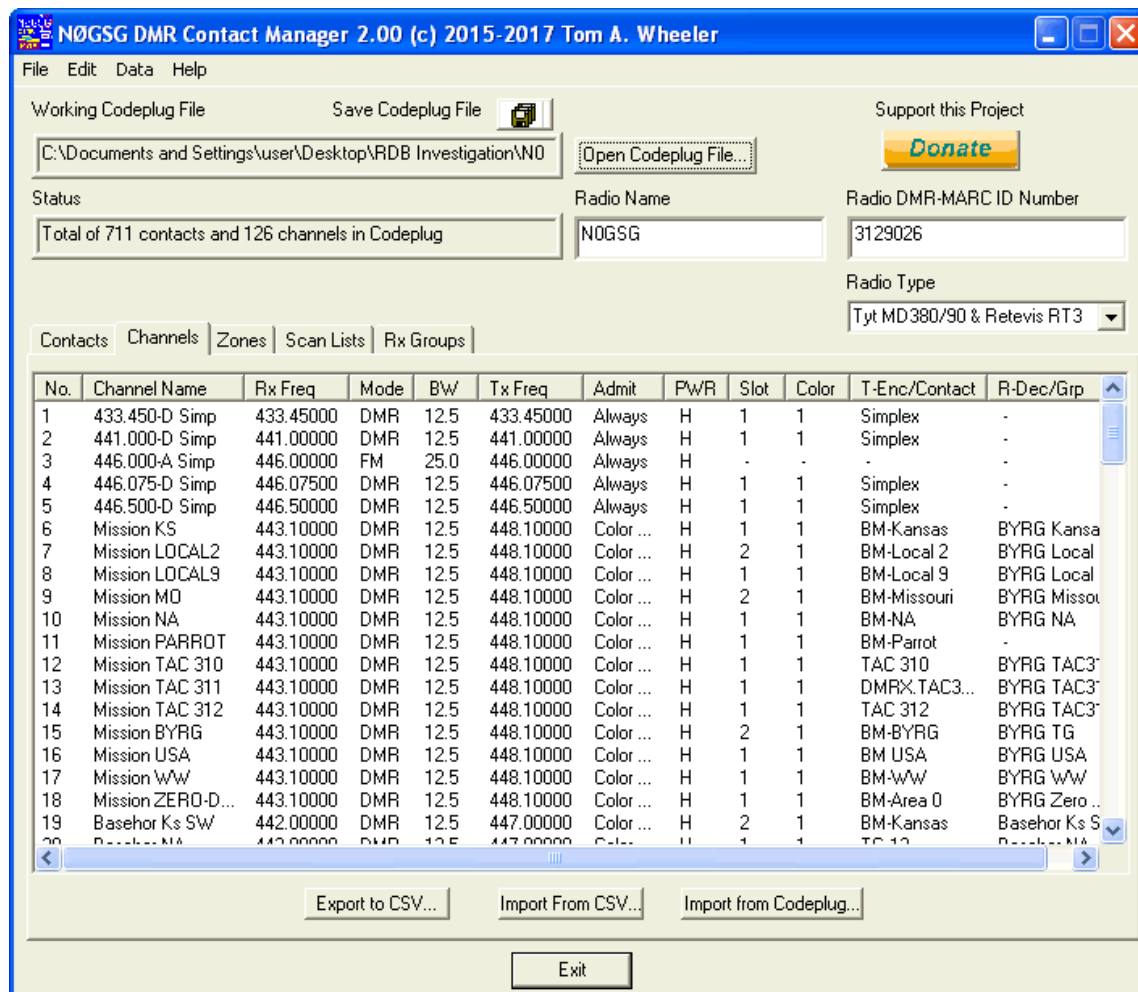


Figure 5: Contact Manager in CHANNEL Mode

Many, but not all, fields for channels are shown in the CHANNELS tab. For compactness, some fields serve a dual purpose; for example the field "T-Enc/Cnt" holds the CTCSS tone encode value for transmission on an FM channel, and the CONTACT value for a DMR channel. All fields are visible in channel edit mode.

TIP: RDB Codeplugs (CS750/800) must have at least one channel. The last channel can't be deleted for this reason.

3.1 Sorting Channels

Contact Manager will sort the channels in the codeplug when any column header of the channel list is clicked. This is useful for visualizing what channels are in the codeplug, as well as the frequency ranges and other dependent information.

IMPORTANT: Sorting channels changes the order they will appear in the codeplug and radio display. This enacts an organizational change to the codeplug's relational database structure that is fully accounted for by Contact Manager. It does NOT affect the operation of the channels or their membership in zones, scan lists, and so forth.

TIP: If you wish to sort channels to locate information, but don't want to make permanent changes, do not save changes to the codeplug when exiting the program (or opening another codeplug).

3.2 Editing Channels

To edit a channel, either double-click the channel, or right click on the channel and choose "Edit..." from the context menu. The channel editor dialog of Figure 6 will appear.

Channel Name	Bandwidth (kHz)	Squelch	Power	<input type="checkbox"/> Auto Scan
UCRAC145.29-D	12.5	NORMAL	HIGH	<input type="checkbox"/> Receive Only (No Transmit)
Receive Frequency (MHz) 145.290	Transmit Offset [..]	Transmitter Time-Out 180	Admit Criterion Always	<input type="checkbox"/> VOX
Transmit Frequency (MHz) 144.690	Scan List Home	TOT Rekey Delay 0	RX Ref Freq LOW	<input type="checkbox"/> Allow Talkaround
Emergency System None	Contact Name (TX) GROUP913	Color Code 1	<input type="checkbox"/> Lone Worker	<input type="checkbox"/> Private Call Confirmed
Group List None	Encryption (Privacy) None	TDMA Time Slot 1	<input type="checkbox"/> Emergency Alarm Acknowledge	<input type="checkbox"/> Data Call Confirmed
Encryption Code 1				

Save Changes Cancel

Figure 6: Channel Editor Dialog

The channel editor allows manipulation of most channel parameters; simply use the drop-down boxes and blanks to modify the information as required.

Certain channel parameters unique to particular models are not displayed. For example, the "Personality" setting for CS750/800 (RDB) analog channels is not displayed.

There are two tabs in the channel editor, DMR CHANNEL and FM CHANNEL. Digital channels will display with the DMR CHANNEL tab active, and FM channels will show the FM CHANNEL tab.

IMPORTANT: Clicking the DMR and FM tabs changes the channel's type, and also changes the information that's displayed. Be careful!

Once you've made the desired changes to a channel, click the **Save Changes** button, or click **Cancel** to discard the changes.

3.3 Adding Channels

To add a new channel to the codeplug, right-click within the channel list to bring up the context menu, and choose "**Add Channel...**" from the menu.

The channel editor of Figure 6 will again display; enter the information for the channel and click **Save Changes** to enter it into the codeplug.

Channels are always appended to the end of the codeplug. To alter the position of a channel, sort the codeplug channels as desired.

For RDB analog channels, undisplayed fields have the same default values as assigned by the CPS.

3.3 Copy and Paste Operations with Channels

Channels can be freely moved between codeplugs by using standard copy and paste commands within Contact Manager. For FM channels, only the channel data are copied; for DMR channels, Contact Manager also moves the appropriate DMR-MARC contact information. This happens automatically.

To move selected channels from one codeplug to another, proceed as follows:

- Open two copies of Contact Manager. Open the source codeplug in one copy, and the destination in the other.
- In the source codeplug, highlight the desired channels, then right-click within the channels list to bring up the context menu.

Choose "*Copy*" from this menu. The channels (and associated contact data elements, if needed) are copied to the clipboard. (You may also use **CTRL** - C to perform the copy.)

- In the destination codeplug, paste in the desired channels using any one of these methods:
 1. From the *Edit* menu, select "*Paste*" to paste in the new channels, or type **CTRL** - V.
 2. Right click within the channels list and select "Paste" from the context menu.

During a paste operation, Contact Manager checks for duplicate channel names as well as duplicate DMR-MARC ID numbers in contacts. Duplicate DMR-MARC contacts are not imported.

IMPORTANT: Contact Manger implements intelligent paste technology. When duplicate DMR-MARC ID numbers are detected, Contact Manager assigns the contact name for the incoming channel to the resident contact name in the target codeplug.

As an example, suppose the channel being copied from the source codeplug uses a contact named "DIRECT" with a DMR-MARC ID of 99, but a contact named "SIMPLEX" with an ID number of 99 exists in the target (recipient, paste) codeplug. This would normally be an error; however, Contact Manger simply reassigns SIMPLEX as the digital contact value for the incoming channel.

In this example, the contact named "DIRECT" is not imported at all and will not appear in the destination codeplug. It's not an error, and in fact will work perfectly in the target radio, as only the DMR-MARC ID number is important!

After a paste, Contact Manager reports the number of channels and supporting digital contacts added, as well as the number of duplicates skipped, if any.

TIP: You can create duplicates of channels within the same codeplug by simply doing a copy and paste. Contact Manager will prompt you for a distinct name for the newly-copied channel(s) (no two channels may share the same name).

3.4 Importing Channels from Another Codeplug

Contact Manager allows channels and associated digital to be moved en-masse from one codeplug to another without opening two copies of the program.

If you want to pull all channels from a different codeplug into the working codeplug, proceed as follows:

- Open the working codeplug.
- From the CHANNELS pane, click the **Import From Codeplug...** button.
- Contact Manager will open a file selection dialog; choose the codeplug containing the channels you want imported.
- Click the **Ch Import ->** button in the file selection dialog to complete the import.

Contact Manager will report how many channels were imported, and will intelligently import and adjust related contact information for each channel as required.

TIP: The source and destination codeplugs can be of any supported type, and do not have to be the same type at all.

This can also be accomplished using the Structural Import feature described in Section 6.

4.0 Zone Management

Controller Manager allows visualization and editing of zones within codeplugs. A zone is a special portion of the radio configuration that contains a set of 16 channels, along with the scan lists and other data associated with each channel.

To work with zones, click the ZONES tab; the software will display the zone information as shown in Figure 7.

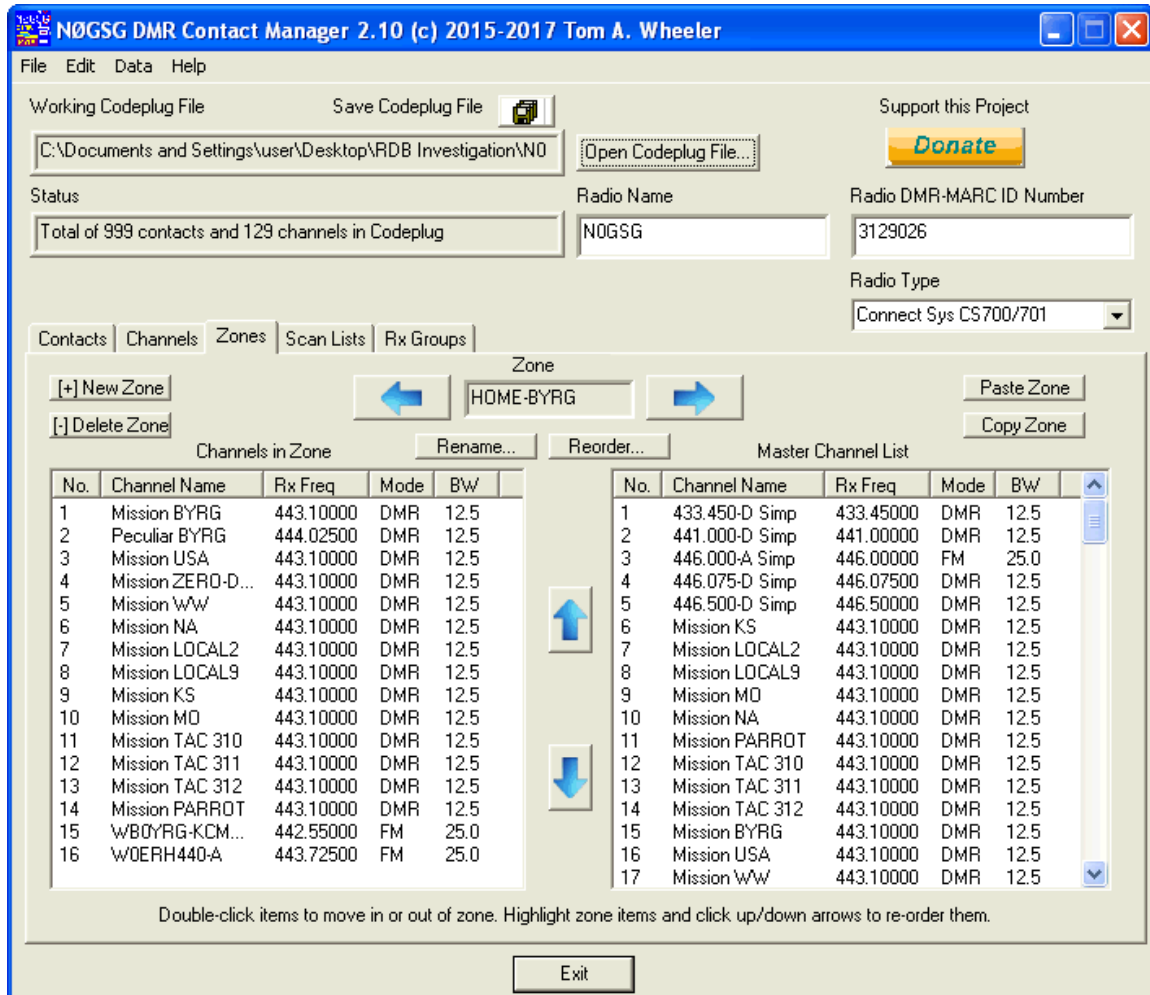




Figure 7: Zone Mode

The left list, "Channels in Zone," shows what channels are currently in the zone. The right list, "Master Channel List," always shows all available channels in the codeplug.

The Master Channel List can be sorted for easier location of individual channels, if desired. The zone channels do not support sorting.

4.1 Selecting the Active Zone



The radios supported by Contact Manager allow up to 250 different zones. To select the active zone, click the  and  buttons.

4.2 Operations within a Zone

Several options are available within each zone:

- To add channels to the active zone, double-click the channel desired in the Master Channel List. They will be added to the channels in the left-hand zone content list.

A zone will not hold more than 16 channels. Channels are placed into the zone in the order they are pulled from the Master Channel List, and cannot be sorted.

- To remove channels from a zone, double-click them in the left-hand Zone Channel List; they'll be removed from the zone.
- To rename a zone, click the **Rename Zone** button and type in the new name for the zone.
- To copy a zone to the clipboard, click the **Copy Zone** button. Conversely, if you've copied a zone to the clipboard and want to insert it into the codeplug, click the **Paste Zone** button.
- To reorder items within a zone (which impacts the position at which they will be activated using the channel switch on the radio), highlight them, then click the  or  buttons to move them. *Only one item may be moved at a time.*
- You can directly edit channels within a zone by right-clicking them, then choosing "Edit Channel. . ." from the pop-up menu.

4.3 Adding and Removing Zones

To add a new zone, click the **[+] New Zone** button. Contact Manager will prompt you for the name of the new zone, and a new zone with empty channels will be produced.

To remove a zone, click the **[-] Delete Zone** button. Contact Manager will ask you for confirmation before removing the zone.

TIPS:

- (1) Removing zones does not impact the channels stored in the codeplug (they are not deleted when a zone containing them is deleted.)
- (2) You can copy an existing zone, then paste it back into the same codeplug as a new zone. This is useful if you want to create a new zone that's derived from an existing one.

4.4 Copying Zones Between Codeplugs

It's easy to move zone data between two or more different codeplugs. As with copying channel data, Contact Manager intelligently pastes zone data:

- When zone channels are moved into the destination codeplug, Contact Manager checks to see if the new zone is referencing existing channels.

If the specified channel from the zone already exists, it is not copied into the destination codeplug.

NOTE: Contact Manager uses the name of the channel to determine duplicity. This is not a guarantee of error-free operation, so you should verify zone data after pasting.

- Whenever new channels are imported, Contact Manager automatically moves associated contact data as needed.

Contacts use the DMR-MARC ID number as the primary key for duplicate checking; if an existing contact in the destination codeplug has the same primary key, that contact will automatically be substituted for the imported channel's contact name.

4.5 Reordering Zones within Codeplugs

Contact Manager allows the order of zones to be adjusted within codeplugs. This feature makes it easy to optimize codeplug structure for best operational efficiency and understanding for end-users.

To change the order of zones, click the **Reorder. . .** button under the Zones tab. The following dialog will appear as shown in Figure 8:

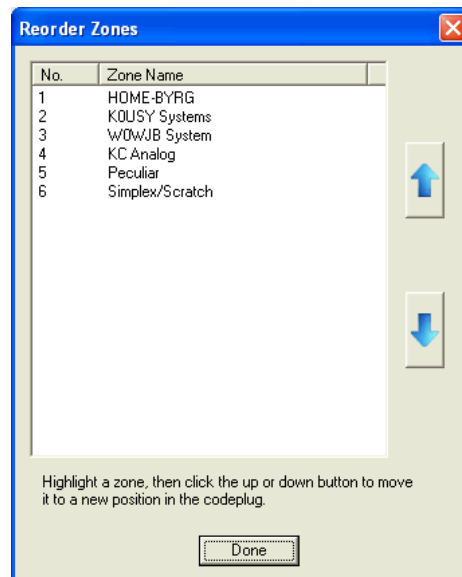


Figure 8: Reorder Zones Dialog

Within the Reorder Zones dialog, simply highlight a zone, then click the  or  buttons to move it to a different position in the codeplug.

5.0 Scan List Management

Controller Manager allows visualization and editing of scan lists.

To work with scan lists, click the SCAN LISTS tab; the software will display the scan list information as shown in Figure 8.

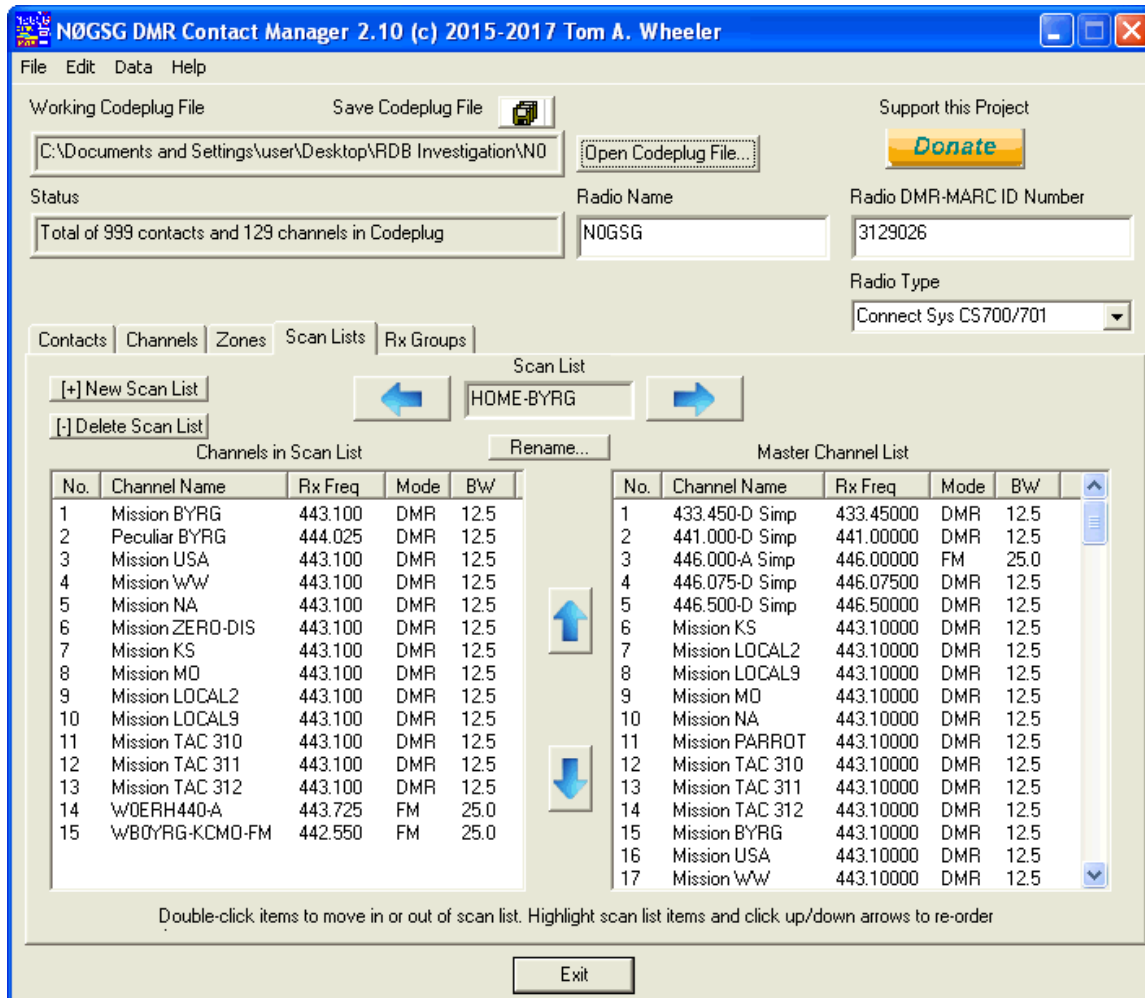






Figure 8: Scan List Mode



The left list, "Channels in Scan List," shows what channels are currently in the scan list. The right list, "Master Channel List," always shows all available channels in the codeplug.

The Master Channel List can be sorted for easier location of individual channels, if desired.

The scan list channels in the left pane do not support sorting, however, you can use the  or  buttons to re-order them as desired.

5.1 Selecting the Active Scan List

The radios supported by Contact Manager allow up to 250 different scan lists. To select the active scan list, click the  and  buttons.

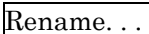
TIP: The  and  buttons have alternate text of "previous group" and "next group" for those using vision assistive software.

5.2 Operations within a Scan List



Several options are available within each scan list:



- To add channels to the active scan list, double-click the channel desired in the Master Channel List. They will be added to the channels in the left-hand scan list content list.

A scan list will not hold more than 31 channels. Channels are placed into the scan list in the order they are pulled from the Master Channel List.

- To remove channels from a scan list, double-click them in the left-hand Scan List Channel List; they'll be removed from the scan list.
- To rename a scan list, click the  button and type in the new name for the scan list.

TIP: Renaming a scan list has no operational impact on the codeplug - - Contact Manager automatically updates references to the scan list in all channels.

- To reorder items within a scan list (which impacts the order that the radio searches them), highlight them, then click the  or  buttons to move them. *Only one item may be moved at a time.*

TIP The  and  buttons have the alternate text of "move item up" and "move item down" for those using vision assistive software.

- You can directly edit a channel in a scan list by right-clicking on it, then selecting "Edit Channel. . ." from the pop-up menu.

5.3 Adding and Removing Scan Lists

To add a new scan list, click the button. Contact Manager will prompt you for the name of the new scan list, and a new empty scan list will be produced.

To remove a scan list, click the button. Contact Manager will ask you for confirmation before removing the scan list.

TIPS:

- (1) Removing scan lists does not impact the channels stored in the codeplug (they are not deleted when a scan list containing them is deleted.)
- (2) The current version of Contact Manager does not support copy and paste for scan lists.

6.0 Structural Import Concepts

Contact Manager has the ability to work with multiple codeplug types, and by using the clipboard, information of various types such as contacts, channels, and zones can be freely copied between any open codeplugs.

However, even with this capability, it can be tricky to move configuration data between codeplug types, as there are many data dependencies within codeplugs, as illustrated by Figure 9.

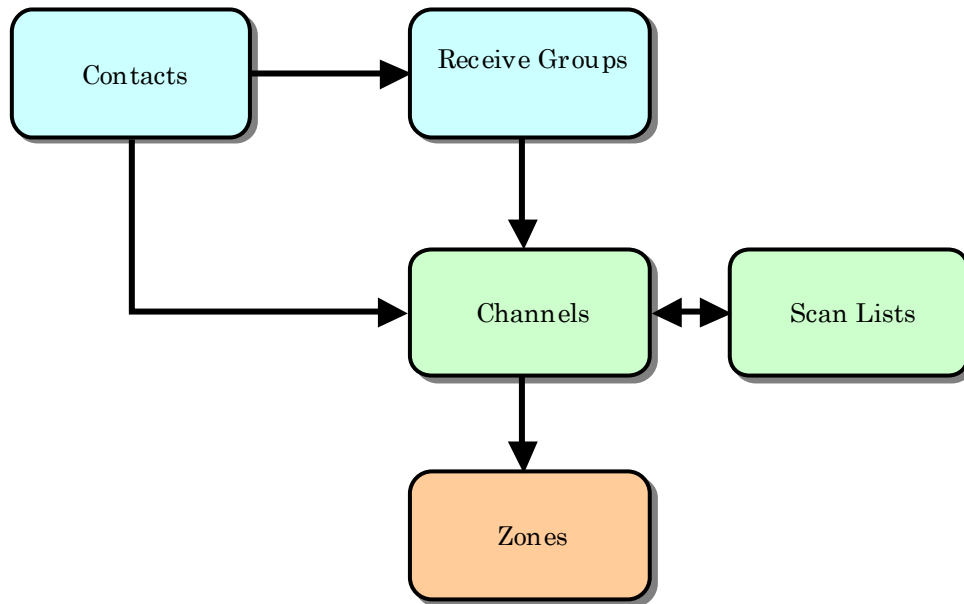


Figure 9: Codeplug Data Dependencies

Figure 9 illustrates the complex nature of the information within codeplugs. In the figure, arrows reflect the relationships between different areas of the codeplug. For example, the data held in digital contacts is needed by both channels (for the Tx Contact information) as well as receive groups (which contain lists of contacts). In turn, channels and scan lists are co-dependent (a channel may specify a scan list, and scan lists specify groups of channels), while zones depend upon channel data.

It's a lot to keep track of, and fortunately, Contact Manager does this for you automatically; this is especially important when data are copied and pasted using the clipboard; Contact Manager's IntelliPaste technology works to keep related data together during these operations.

Structural Import is designed to go a step beyond mere copy and paste. It allows mass-import of information between codeplugs of any supported type, and assures that all of the supporting data framework is inserted correctly so that the new codeplug will work correctly the first time, with no manual adjustments or "tweaking."

The format of the codeplugs makes no difference. Contact Manager automatically converts information to the correct format when inserting it into the destination codeplug.

WHY NOT DESIGN CONTACT MANAGER TO DIRECTLY CONVERT BETWEEN CODEPLUG FAMILIES?

This is a good question, and in fact, is a fundamental design decision behind the software. This approach has been expressly avoided as there are too many variations of Customer Programming Software (CPS) used with various manufacturer's radios, each with many undocumented structural data nuances. We've found that it's possible to do this in a limited fashion within families (such as RDT), but it proves to be risky business when moving across platforms (RDT to RDB, for example, which isn't even a uniform standard). Therefore, Contact Manager requires a blank codeplug, generated by you for your own radio, in order to work with the data.

6.1 Performing a Structural Import

It's very easy to import the important information from another codeplug. Simply perform the steps as follows:

- Open the codeplug that is to be the recipient of the information in Contact Manager.

TIP: We recommend that the information in the recipient codeplug be kept to a minimum. Conflicts of data fields (such as contact names, channel names, and so forth) will result in dropped information during the transfer.

- Click the Structural Import Tab as shown in Figure 10.

As you can see, we've created a blank CS800 (RDB) codeplug previously in the CPS. There is minimal information in this codeplug.

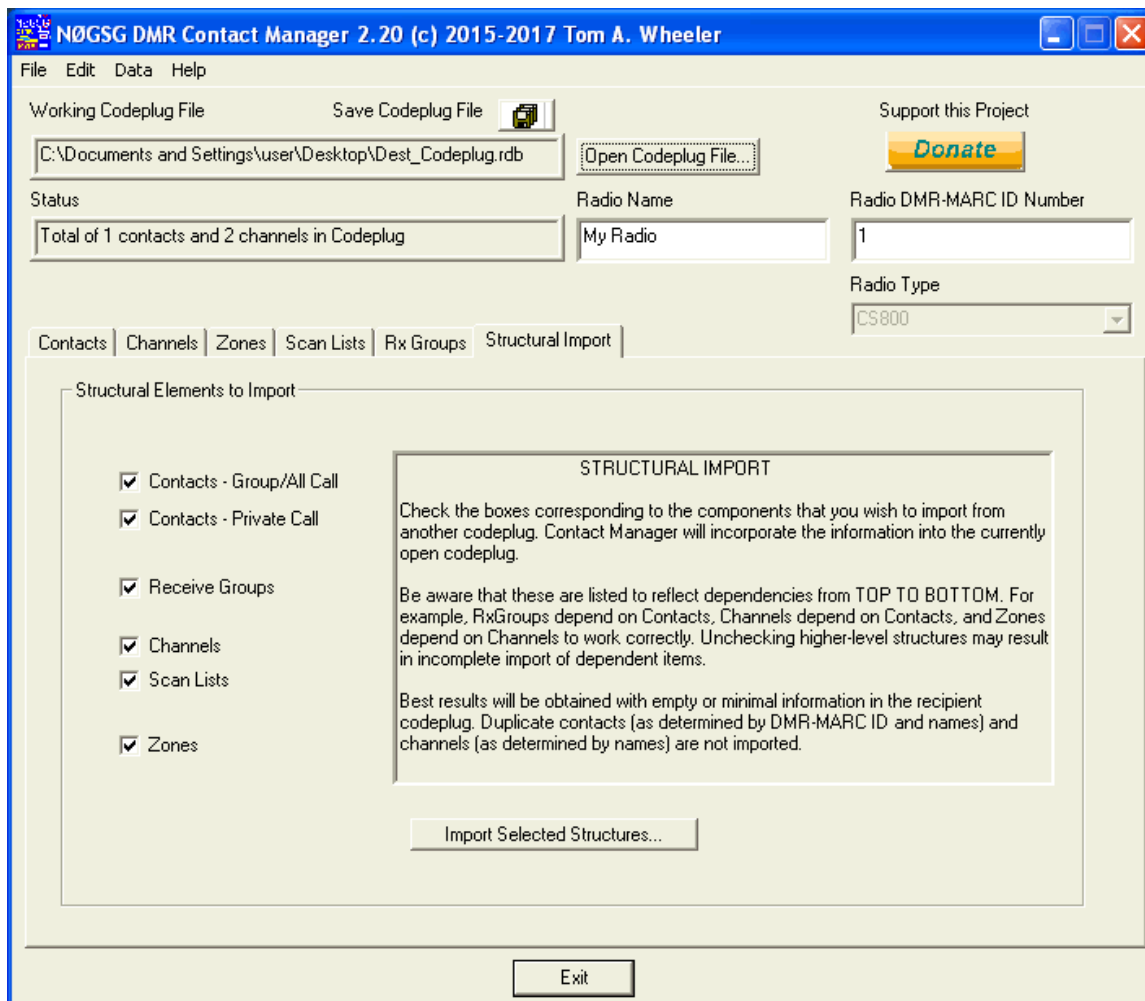


Figure 10: Structural Import Tab

- Within the Structural Import tab, select the data elements that you wish to import. All the elements are checked by default.

TIP: Remember that these items are dependent upon each other. If you uncheck "Group/All Call" contacts, for example, any channels that rely upon a group or all call contact will be transferred with empty contact information - - and probably won't work!

- Click the **Import Selected Structures...** button and choose the donor (source) codeplug, which can be of any type, as shown in Figure 11.

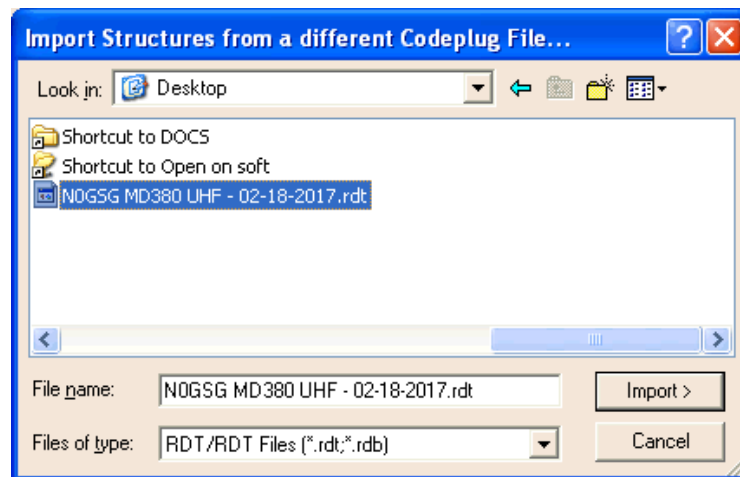
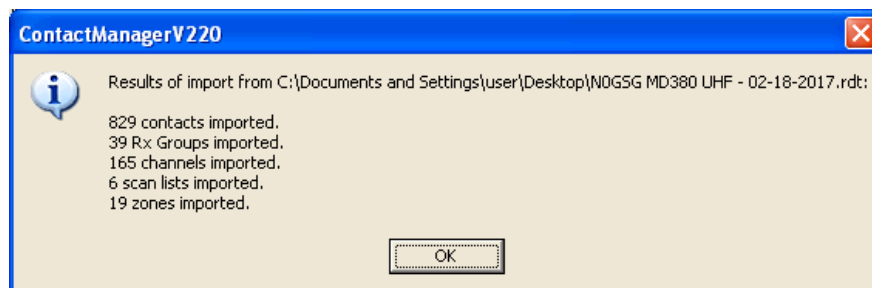


Figure 11: Choosing the Donor Codeplug for Structural Import

You can see that we're going to pull in all the data from an MD380 (RDT) codeplug. Our CS800 codeplug will have exactly the same contacts, channels, and zones as the donor MD380.

Click the **Import >** button to begin importing the information.

Once you've clicked **Import >**, Contact Manager will move the information into the open codeplug. A brief summary of what has been imported will be displayed:



In this instance, we have moved all the data from NØGSG's MD380 codeplug into a CS800 codeplug. The CS800 will have all the contacts, receive groups, channels, scan lists, and zones provided by the MD380 codeplug, and they'll be organized identically.

TIP: You can aggregate the structural information from multiple codeplugs if desired. Just repeat the procedure above for each codeplug that you wish to import data from. Remember that conflicting information (such as duplicate channel names and contacts) may cause problems, so carefully evaluate this information before splicing multiple codeplugs together.

TIP: If you're working with codeplugs with many contacts (tens of thousands), it may take a few seconds for the import operation to complete. This is normal.

6.2 How Conflicting Information is Handled During Import

Contact Manager does its best to cleanly import information, however, there are some situations that will cause data elements to be omitted or modified:

- Duplicate contact (NAME and DMR-MARC ID are both identical): The contact is not imported as it already exists in the CONTACTS table.
- Duplicate channel name: The channel is not imported. When determining duplicity for a channel, only the name is examined - - the frequency data are not compared.
- Duplicate receive groups: These are simply imported and will appear as duplicates within the codeplug. No harm is done, but future releases of Contact Manager will probably address this differently.
- Duplicate scan lists: Duplicates will be imported and will have a number (1, 2, etc.) appended to their name to show that they're duplicates.
- Duplicate zones: Duplicates will be imported and will have a number (1, 2, etc.) appended to their name to show that they're duplicates.

Finally, upper and lower case letters appear the same to Contact Manager when comparing name information in each data field.

WEIRD DUPLICATES (THAT YOU MAY NOT EXPECT)

Some codeplug formats compress character strings (such as the names of channels and contacts) in bizarre ways. Before checking for duplicates, Contact Manager first determines if the destination data field is compressed, and if so, what method of compression (lossless or lossy) has been used.

Two key examples of this are contact and channel names in RDB (CS750/800) codeplugs. Lossy compression is used for these fields, and as a result, the only punctuation allowed is the space and period. Therefore, Contact Manager considers the following contact names exactly equal when importing information into an RDB codeplug:

- "Bill-WAØCBW"
- "Bill*WAØCBW"
- "Bill.WAØCBW"

In an RDB codeplug, all of these will be compressed as "Bill.WAØCBW" as the period is the only punctuation allowed. Therefore, these are all duplicate names!