

NØGSG DMR Contact Manager

Radio Configuration Management Software for DMR Transceivers

End-User Documentation

Version 2.50

© 2015-2018 Tom A. Wheeler

<http://n0gsg.com>

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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, TYT MD2017/9600, AnyTone AT-D868UV¹, 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 The AnyTone AT-D868UV is supported directly through CPS 1.21, and CPS 1.26 by using the AnyTone CPS Tools -> Export Data Conversion File command.

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.

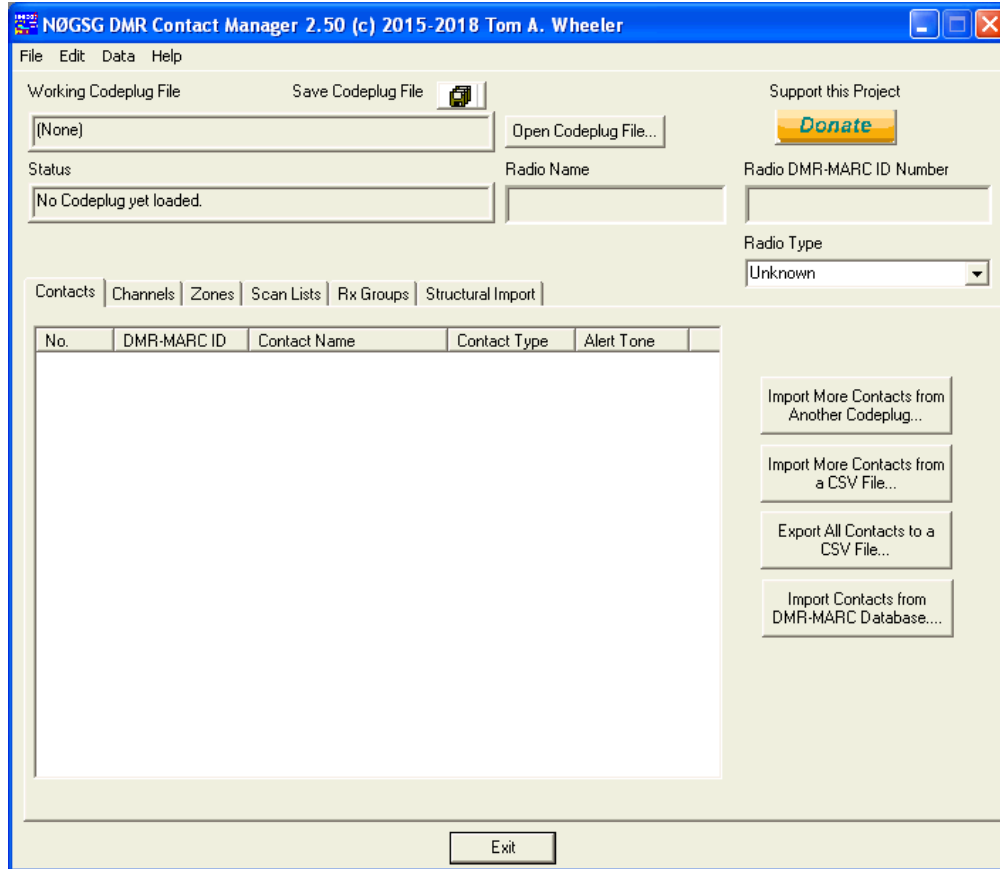


Figure 1: Contact Manager User Interface

There are five modes in the program, selected by clicking on each of the 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.
- Structural Import Mode: This mode allows moving data freely between different kinds of codeplugs. Channels, zones, contacts, scan lists, and other information can be freely copied between any supported codeplug types - - which makes it easy to migrate configurations between different makes of radios.

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. For radios that support multiple DMR ID numbers, Contact Manager always displays the first DMR ID number in the radio's database.
- **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. *This functionality is limited to certain RDT formats only and will not work for RDB codeplugs. The dropdown is grayed out if the option is unavailable for the currently-loaded codeplug.*

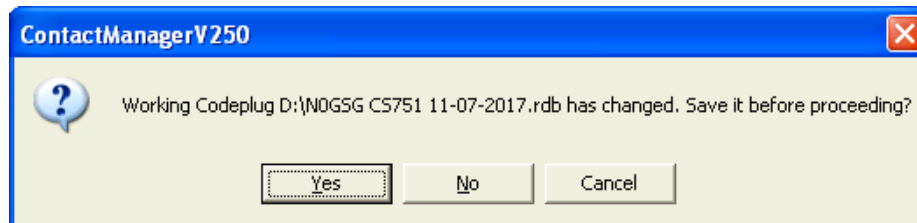
IMPORTANT: If you're creating a codeplug template to be shared by others (such as within a radio club), don't forget to update the RADIO NAME and DMR-MARC ID fields for each individual unit. Otherwise you'll have multiple units with the same identity, which can be very confusing!

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.

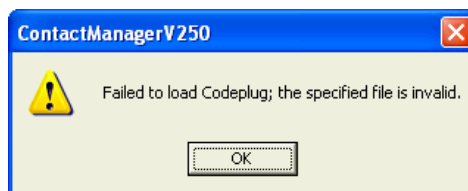
Be careful when enacting changes. You can easily "break" codeplugs!

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



TIP: If you get this message when working with the AnyTone AT868UV (CPS 1.26 and later), first export your codeplug from the CPS as a DCF file (CPS Tool->Export Data Conversion File). Contact Manager can then work directly with the DCF file, which the CPS can read back to program the radio.

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.

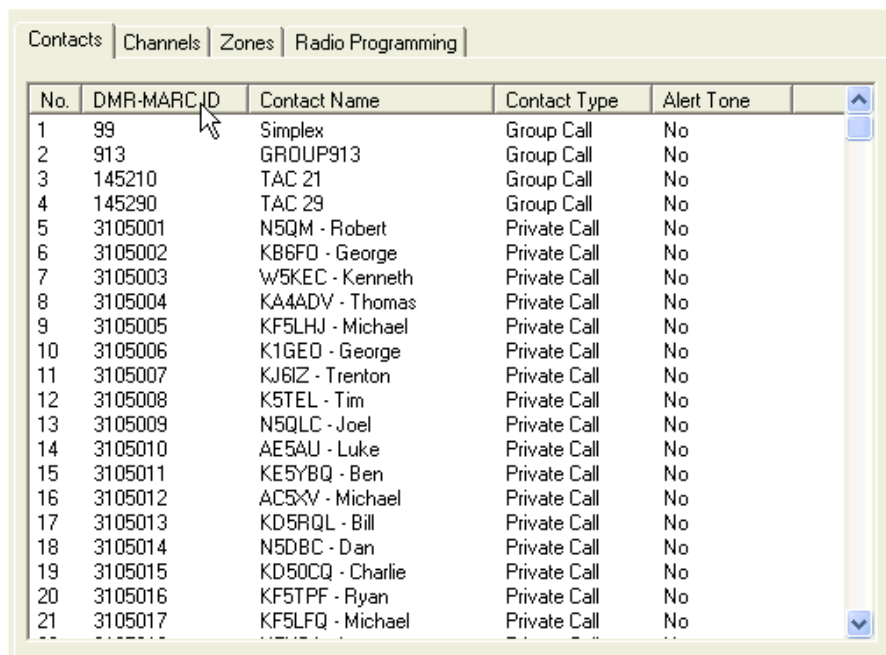
2.2 Viewing Contact Information

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.

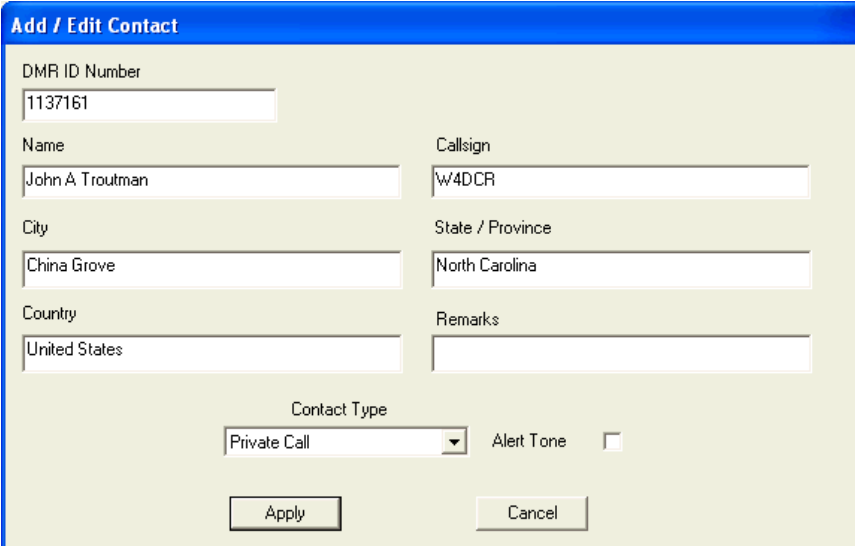
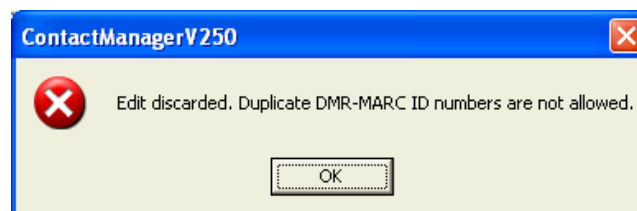


Figure 3: Contact Editor

All codeplug types support the DMR ID number and NAME fields. Some codeplugs may support the extended fields of CALLSIGN, CITY, STATE, COUNTRY, and REMARKS. *All of these fields are automatically populated when using the DMR-MARC import feature, however, fields not supported by the type of codeplug being edited will always appear blank.*

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:

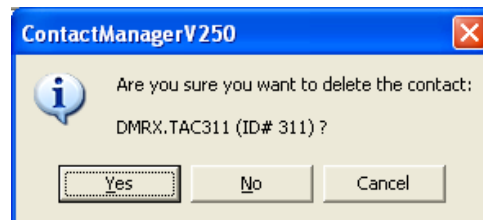


It is permissible to have duplicate contact names for contacts that are of Private Call type. This situation may arise when a ham has two or more distinct radios, each with the same personal identifier (call sign, name) but a different DMR-MARC ID number.

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. Contact Manager wraps all fields in quotes to allow spaces and punctuation to be part of each data field.

IMPORTANT: Microsoft Excel can damage CSV files and is not a recommended editor for this file type. Use a text editor such as Notepad or GEdit instead.

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.

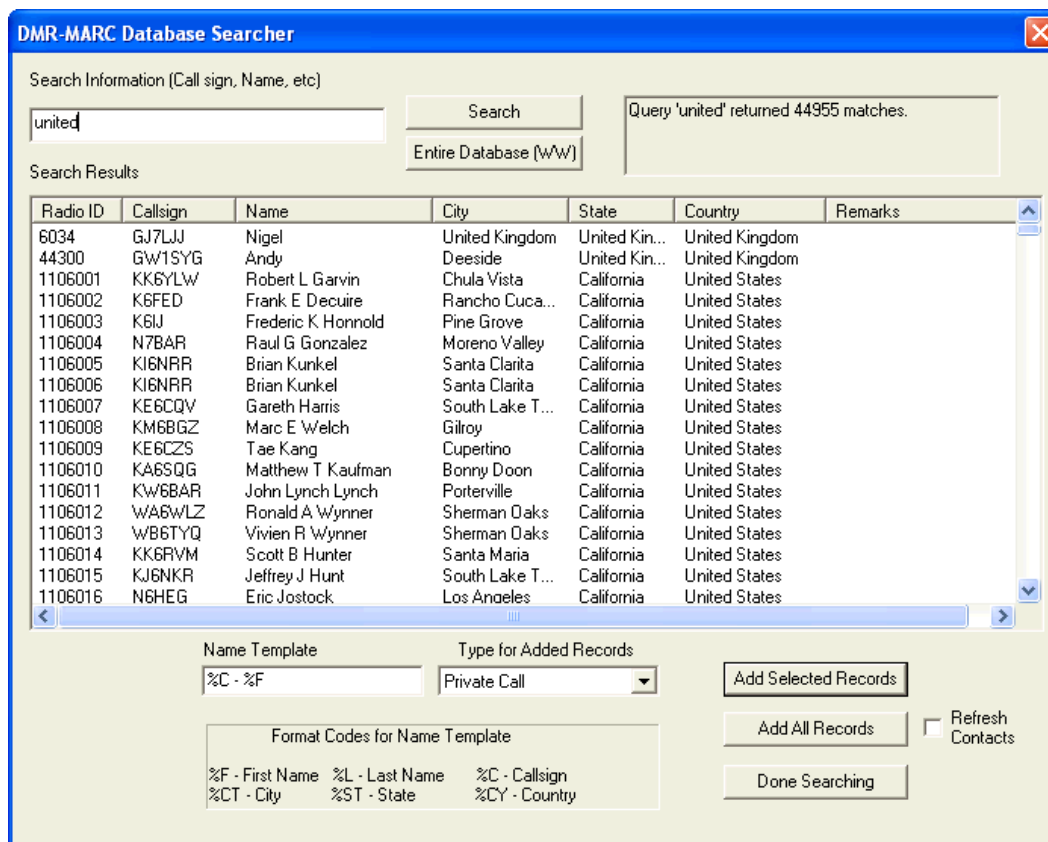


Figure 4: Database Search Dialog

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.

2.7.1 Refreshing Contact Data from DMR-MARC

Occasionally an operator's information such as callsign or location is updated within DMR-MARC. If that operator's information is already stored within the codeplug, Contact Manager will normally consider information for that station a "duplicate" (only one row per DMR ID is normally allowed in the contacts list).

To enable Contact Manager to update existing contacts with new information, check the "Refresh Contacts" box prior to adding records from DMR-MARC:

- If a contact does not exist, Contact Manager will add it to the local database.
- If the contact exists (as defined by the DMR ID Number), Contact Manager will retain the contact and reload its data fields from the current DMR-MARC data.
- Additionally, if extended data fields are available, but the current codeplug shows them as blanks (such as might happen when importing contacts from an older codeplug format, such as MD-380, into an AnyTone radio), Contact Manager will automatically populate the extended data fields with updated information from DMR-MARC.

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 Talkgroup and Contact Management

Some radios maintain separate lists of talkgroups and contacts within their codeplugs. Contact Manager automatically manages this information, and always displays one set of contacts that contains both talkgroups and contacts.

When Contact Manager writes a codeplug that requires a split between talkgroups and contacts, it employs the following rules to keep the information accurate:

- Any contact that's identified as a talkgroup during codeplug read will always be written back as a talkgroup.
- If any contact is associated with a channel or receive group during a Contact Manager session, then that contact will be promoted to a talkgroup when the codeplug is written.
- Contacts may also be manually promoted to talkgroup status (even if they're not associated with a channel or talkgroup) by selecting them within the CONTACTS tab, right clicking to bring up the context menu, and choosing "Mark as Talkgroup" as shown in Figure 5.

Contacts marked as talkgroups will show as talkgroups when the CPS loads the saved codeplug.

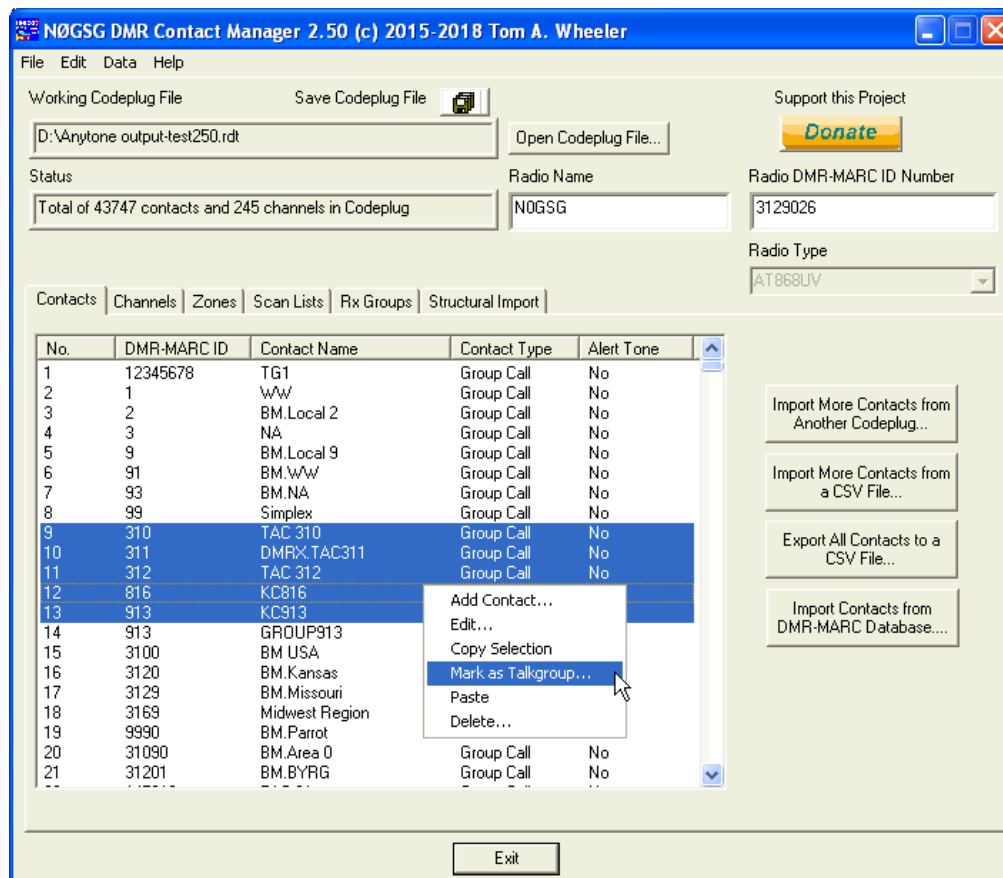


Figure 5: Marking a Contact as a Talkgroup

NOTE: Marking a contact as a talkgroup has no effect on a codeplug that uses a combined table for contacts and talkgroups (CSI, TYT, and so forth).

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 6 will result. If there are no channels in the codeplug, "# No Channels #" will be displayed.

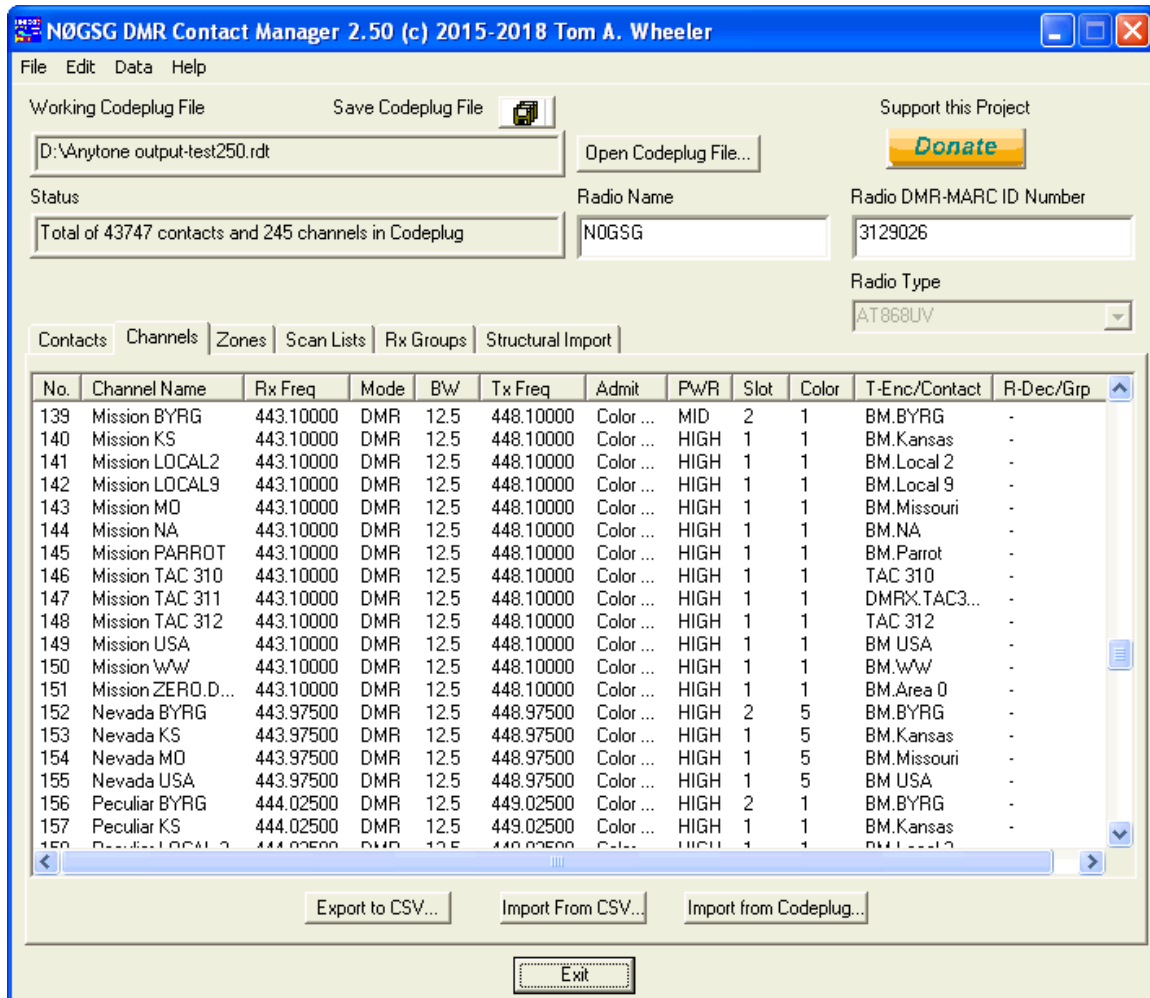


Figure 6: Contact Manager in CHANNEL Mode

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 7 will appear.

Figure 7: 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.

3.5 Editing Groups of Channels

Contact Manager supports mass editing of channels, which allows very specific changes to be applied to groups of channels. For example, a common event in a DMR system is the addition of a new repeater that shares the same talkgroups as an existing repeater.

By using the mass change feature, you can quickly build a new set of channels that inherit information from existing channels while allowing specific changes to be applied that make them apply to a new part of your system.

To apply changes to a group of channels, simply highlight them, then right-click within the group to bring up the context menu as shown in Figure 8. Choose "Mass Change..." from the pop-up menu.

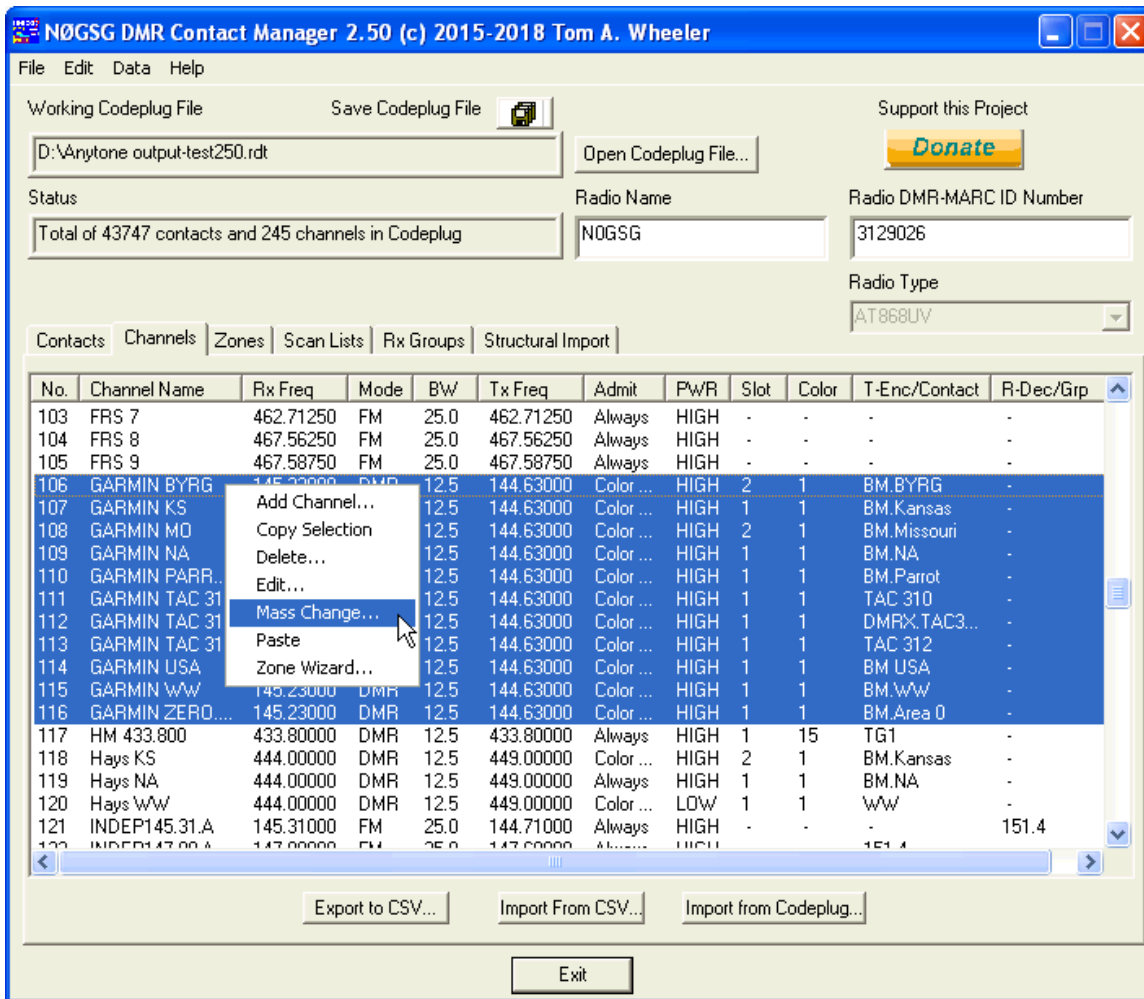
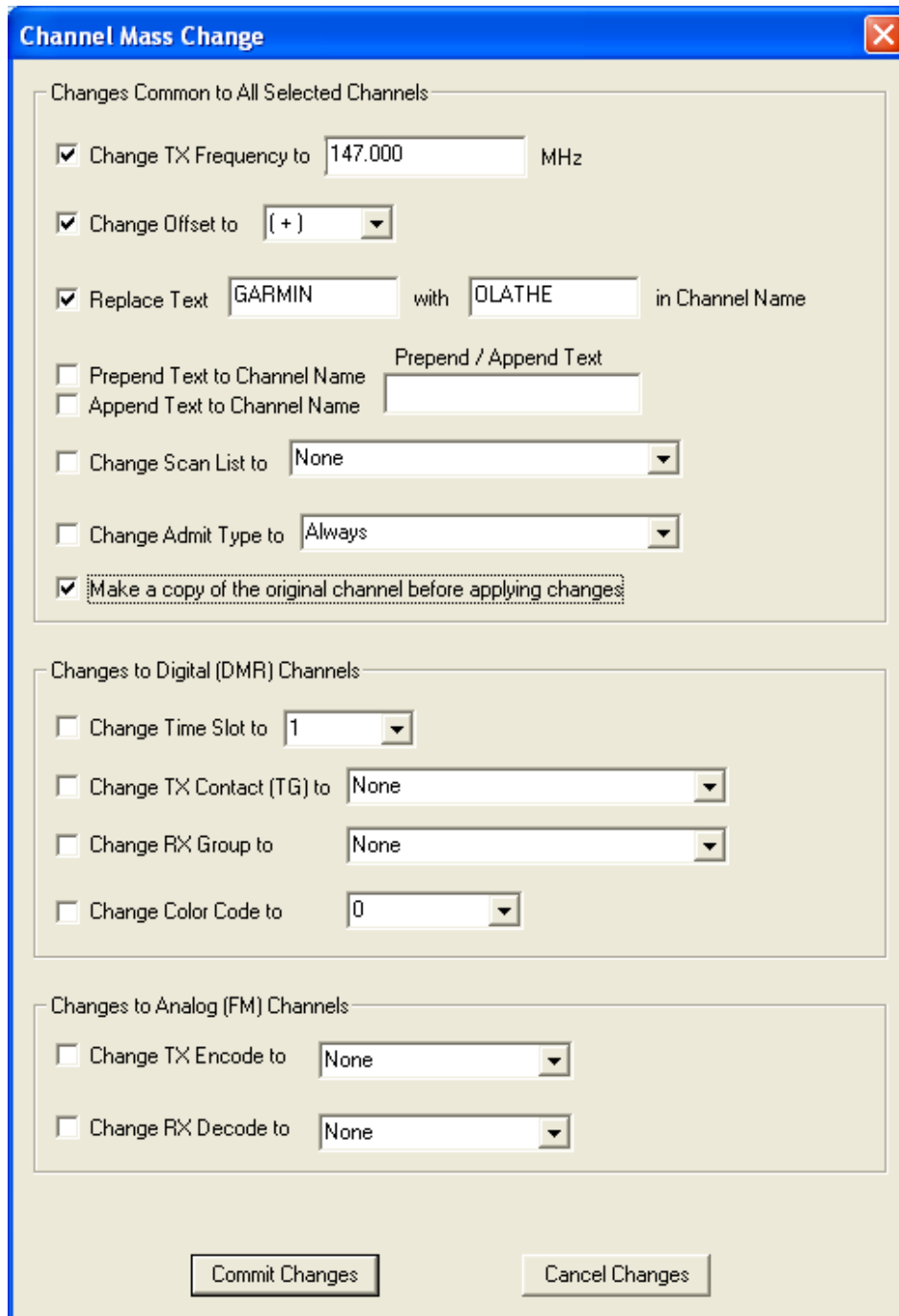


Figure 8: Initiating a Mass Change Operation

Once you've initiated the mass change command, the Channel Mass Change dialog of Figure 9 will appear.



The image shows a software dialog box titled "Channel Mass Change" with a close button in the top right corner. The dialog is organized into three main sections, each with a title and a group of settings:

- Changes Common to All Selected Channels:**
 - Change TX Frequency to MHz
 - Change Offset to
 - Replace Text with in Channel Name
 - Prepend Text to Channel Name
 - Append Text to Channel Name
 - Change Scan List to
 - Change Admit Type to
 - Make a copy of the original channel before applying changes
- Changes to Digital (DMR) Channels:**
 - Change Time Slot to
 - Change TX Contact (TG) to
 - Change RX Group to
 - Change Color Code to
- Changes to Analog (FM) Channels:**
 - Change TX Encode to
 - Change RX Decode to

At the bottom of the dialog, there are two buttons: "Commit Changes" and "Cancel Changes".

Figure 9: Channel Mass Change Dialog

The Mass Change dialog has three important areas. At the left of items in each area is a checkbox. No items will be changed (even if you enter data in the boxes at right) unless one or more checkboxes are selected.

- *Changes Common to All Selected Channels.* Channel frequency, transmit offset, name, scan list, and admit type are all updated here. Very importantly, if the "Make a copy" option is checked, then a copy of the channel is made before performing the requested operations.
- *Changes to Digital (DMR) Channels.* These changes are applied only to the DMR channels within the selection range. This feature allows easy correction of time slot, transmit contact, receive group, and color code.
- *Changes to Analog (FM) Channels.* These items are only applied to FM channels.

In Figure 9, we are asking Contact Manager to do the following operations with the channels:

- The channels are going to be moved to 147.000 MHz, with a positive 600 kHz offset.
- The channels will be renamed by replacing the word "GARMIN" with the word "OLATHE."
- Before applying the changes, Contact Manager will create copies of the original channels - - so in this example, 11 new channels will be created in the codeplug. They'll look like this:

| | | | | | | | | | | | |
|-----|-----------------|-----------|-----|------|-----------|-----------|------|---|---|--------------|---|
| 246 | OLATHE BYRG | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 2 | 1 | BM.BYRG | - |
| 247 | OLATHE KS | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 1 | 1 | BM.Kansas | - |
| 248 | OLATHE MO | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 2 | 1 | BM.Missouri | - |
| 249 | OLATHE NA | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 1 | 1 | BM.NA | - |
| 250 | OLATHE PARR... | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 1 | 1 | BM.Parrot | - |
| 251 | OLATHE TAC 310 | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 1 | 1 | TAC 310 | - |
| 252 | OLATHE TAC 311 | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 1 | 1 | DMRX.TAC3... | - |
| 253 | OLATHE TAC 312 | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 1 | 1 | TAC 312 | - |
| 254 | OLATHE USA | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 1 | 1 | BM USA | - |
| 255 | OLATHE WW | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 1 | 1 | BM.WW | - |
| 256 | OLATHE ZERO.... | 147.00000 | DMR | 12.5 | 147.60000 | Color ... | HIGH | 1 | 1 | BM.Area 0 | - |

Mass Change is an extremely powerful operation. In this brief example, we've just created a distinctly-named set of new channels that inherited their talkgroup information from the GARMIN system in just one step.

It's also possible to automatically build a new zone around this group of channels; for details, see Section 4.

4.0 Zone Management

Contact Manager allows visualization and editing of zones within codeplugs. A zone is a special portion of the radio configuration that contains a set of channels, along with the scan lists and other data associated with each channel. Most radio types store 16 channels in each zone, however, this is not always the case.

To work with zones, click the ZONES tab; the software will display the zone information as shown in Figure 10.

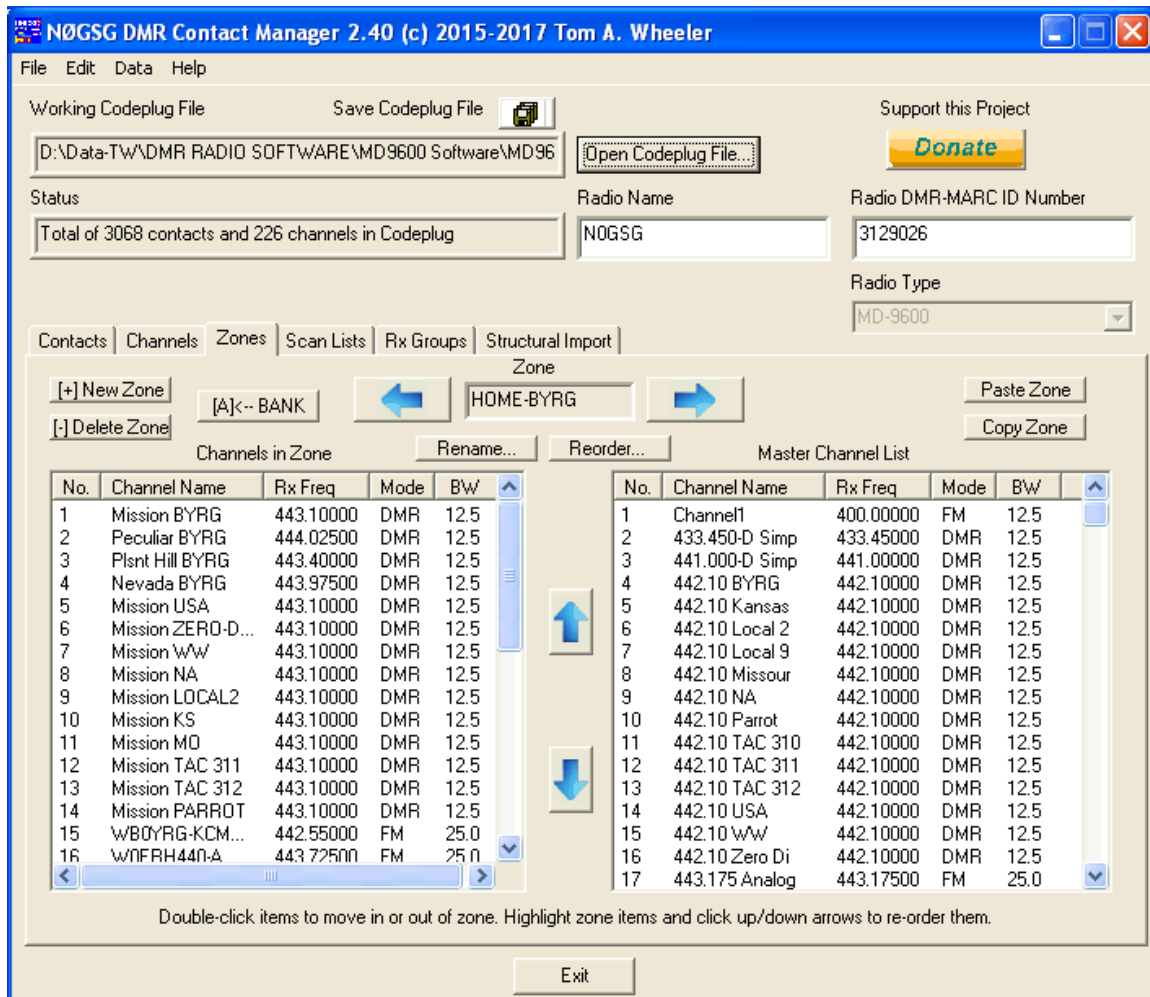




Figure 10: Zone Mode

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

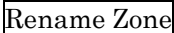
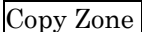
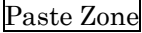


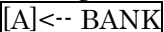
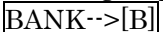
The radios supported by Contact Manager allow up to 250 different zones. To select the active zone, click the  and  buttons.

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  button and type in the new name for the zone.
- To copy a zone to the clipboard, click the  button. Conversely, if you've copied a zone to the clipboard and want to insert it into the codeplug, click the  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.
- Some radios include multiple channel banks in zones. For example, the MD9600 stores two banks of 64 channels (128 total) in each zone. For radios with multi-bank zones, a button will appear showing which bank is being displayed and edited. This button will either appear as  or  as shown in Figure 7. Click it to switch between active banks. **This button appears only when a zone contains multiple banks, so for most radio types it will not be visible.**

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.

TIP: To replicate a zone within a codeplug, simply issue a COPY on the zone you wish to duplicate, then immediately issue a PASTE command to Contact Manager. Contact Manager will prompt you for a new name for the duplicate zone, which you can then edit as desired.

4.4.1 Copying Zones of Differing Layout and Size

Different types of radios may have zones with various layouts and sizes. Contact Manager always transfers as much data as possible during copy and paste operations, subject to the limitations of the source and destination codeplugs.

A few examples will serve to clarify how this works:

Scenario 1: A zone from an MD380 codeplug (16 channels) is copied into a CS800D codeplug (16 channels).

Outcome: All sixteen channels are copied to the CS800D codeplug, as the two zones are dimensionally equal.

Scenario 2: A zone from a MD2017 codeplug is copied, then pasted into an MD380 codeplug. This zone has 32 channels in the A portion, and 16 in the B portion.

Outcome: Since the MD380 can only store 16 channels in a zone, the pasted zone will contain only the first 16 channels from the A portion of the MD2017 zone. The remaining channels in the A and B portions are not pasted into the MD380 codeplug.

Scenario 3: A zone from a CS750 codeplug is copied, then pasted into an MD2017 codeplug. This zone has 16 channels.

Outcome: Contact Manager will create a new zone in the MD2017 codeplug. The A-portion of the new zone will contain all 16 channels from the CS750, and the B-portion will be empty.

Scenario 4: A zone from an MD2017 codeplug (containing a full 128 channels) is pasted into an MD9600 codeplug.

Outcome: The two zones are dimensionally equivalent (two banks of 64 channels), so the zone will be identical when it's pasted into the MD9600 codeplug.

TIP: If you have many zones to move, it's better to employ the Structural Import feature - See Section 6 for details.

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 11:

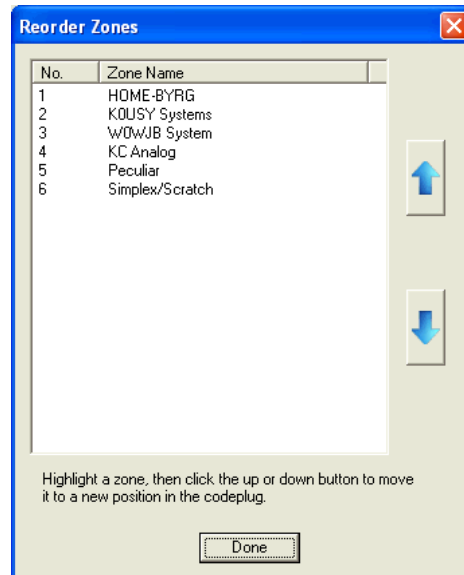




Figure 11: Reorder Zones Dialog

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

4.6 Creating New Zones with Zone Wizard

It's possible to create a new zone from the CHANNELS pane by using the Zone Wizard. Zones created in this manner may also be automatically configured with scan list data if desired.

To create a new zone in this manner, highlight the channels that will be included in the new zone, then right-click within the CHANNELS pane to bring up the pop-up menu as shown in Figure 12; choose "Zone Wizard" from the menu to open the Zone Wizard.

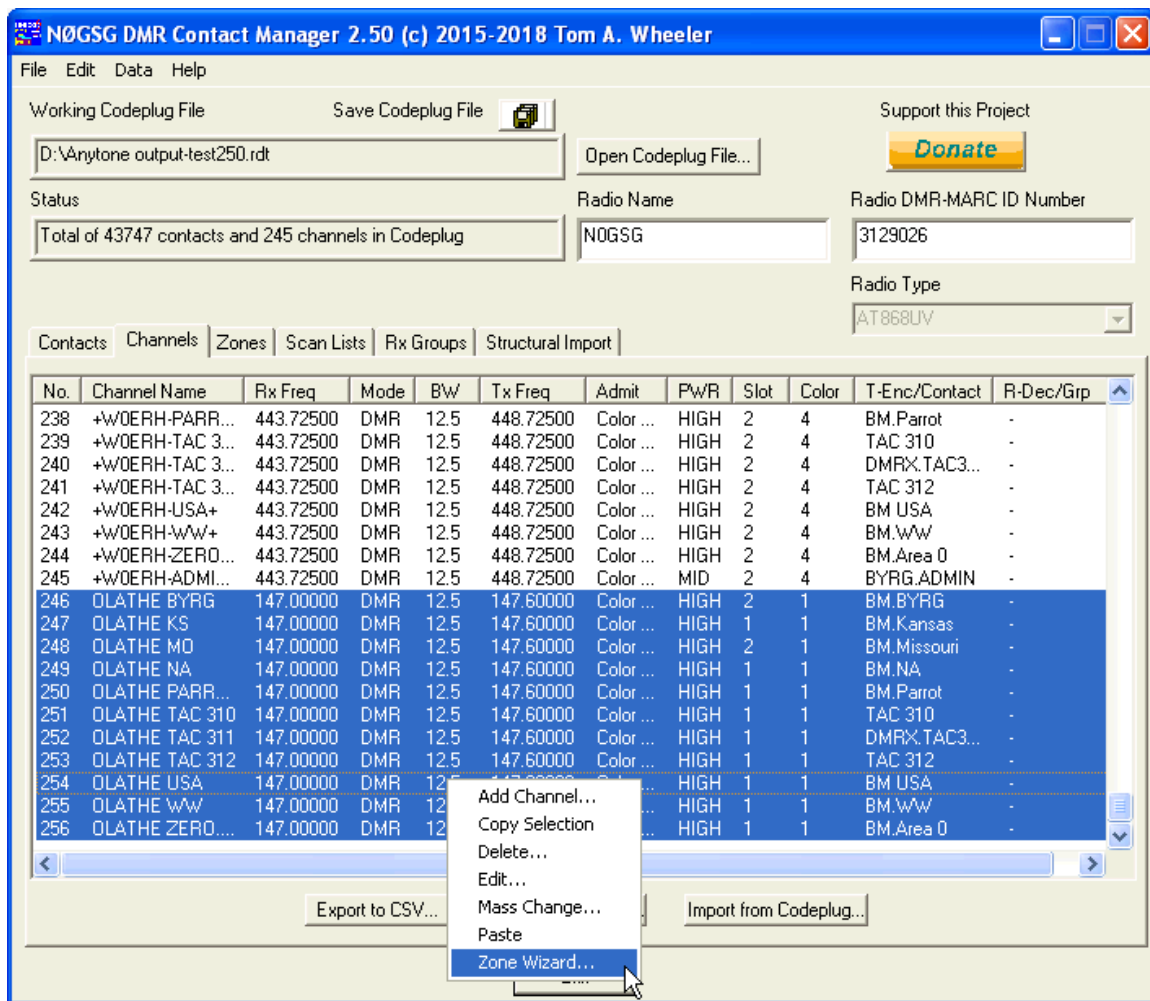


Figure 12: Launching the Zone Wizard

The Zone Wizard will appear as shown in Figure 13.

Zone Wizard

Zone Name: Specify the name of the zone to create. If you use an existing zone name, the selected channels will be added to it.

Zone Status: A new zone 'OLATHE' will be created and it will contain 11 channels from the 11 you selected. Note that zones in this codeplug are limited to 250 channels total.

Channels Selected for Addition to Zone:

- OLATHE BYRG
- OLATHE KS
- OLATHE MO
- OLATHE NA
- OLATHE PARROT
- OLATHE TAC 310
- OLATHE TAC 311

Optional Scan List Creation

Create a Scan List called and add ALL zone channels to it.

Apply the new Scan List to all channels in the zone. (Issuing a SCAN command when any of the zone's channels are active will scan all channels in the zone.)

Figure 13: Zone Wizard

When the Zone Wizard opens, it will propose a name for the new zone. This name is based on the names of the highlighted channels. It will also propose a name for a matching scan list.

You can choose a new zone name by simply typing over the information in the Zone Name box. The Wizard will update the proposed scan list name to match as you type.

The Zone Status box tells you exactly what will happen when you click the **Commit Changes** button. This status changes in real time as you make changes to the zone name.

Additionally, you do not have to create a new zone. If you choose an existing zone, Zone Wizard will instantly recognize that the channels are to be added to an existing zone, and the Zone Status box will provide immediate explanation of what outcomes will occur.

4.6.1 Optional Scan List Creation

Zone Wizard can build a scan list for you that matches what's in the zone. Checking "Create a Scan List" causes the scan list to be built and added to the codeplug. Note that you can freely type in an appropriate name for the scan list.

In most cases, it's most convenient to the end user that scan lists are referenced from any channel within a zone. Checking the "Apply the new Scan List" box causes Contact Manager to associate the new scan list with each channel, such that whenever that channel is active and a scan command is initiated, the radio will execute the newly-created scan list.

CAUTION: For most radios, scanlists are referenced by channels. If you are using a channel in more than one zone, and are depending on that channel to activate a different scan list in other zones, be aware that the channel will be set to start the newly-created scan list. *Any previous scan list assignments on that channel will be lost.* If this is problematic, simply create duplicate sets of channels, each with unique scan list setup, using the Mass Change feature.

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 14.

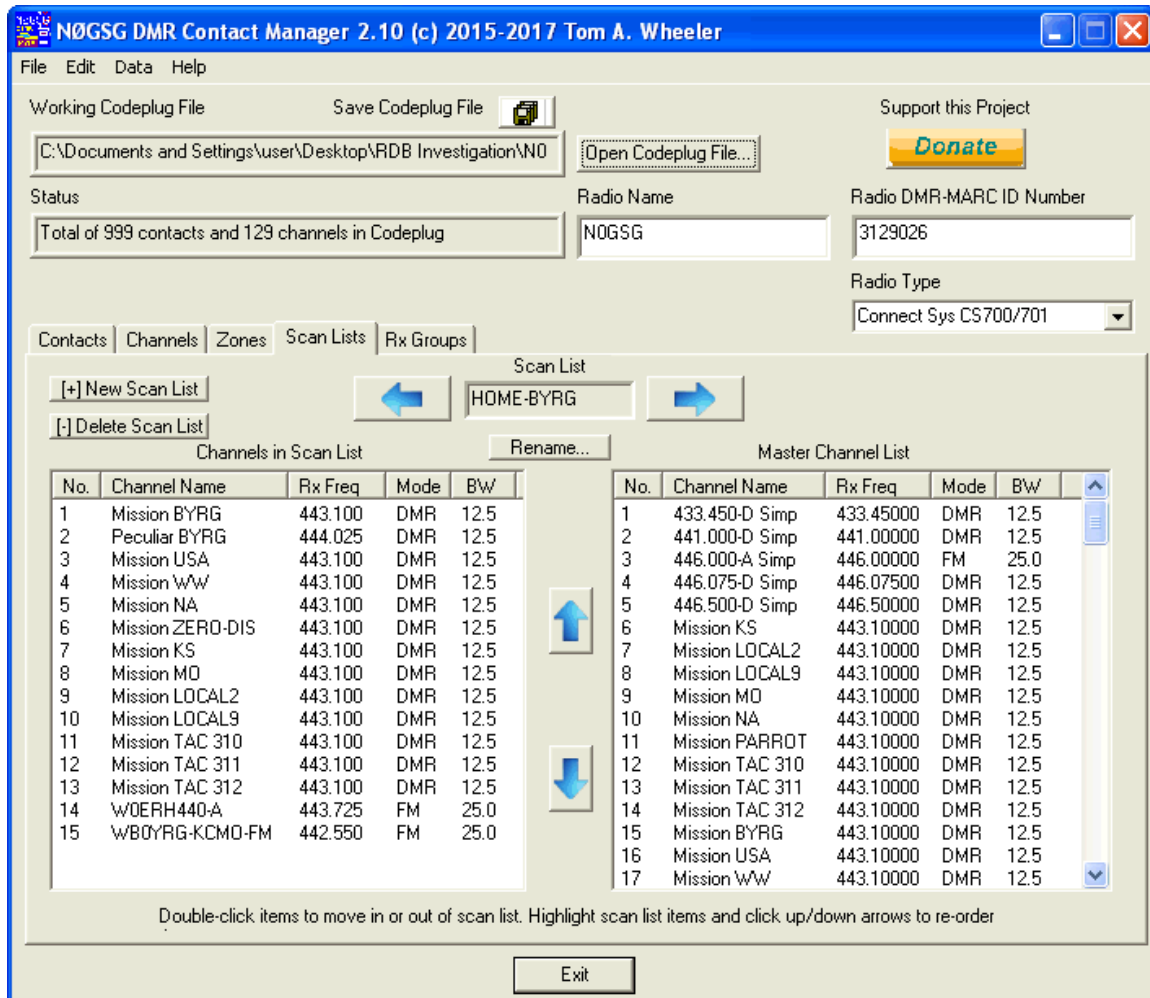






Figure 14: Scan List Mode



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.

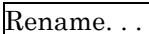
TIP: The  and  buttons have alternate text of "previous group" and "next group" for those using vision assistive software.

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 15.

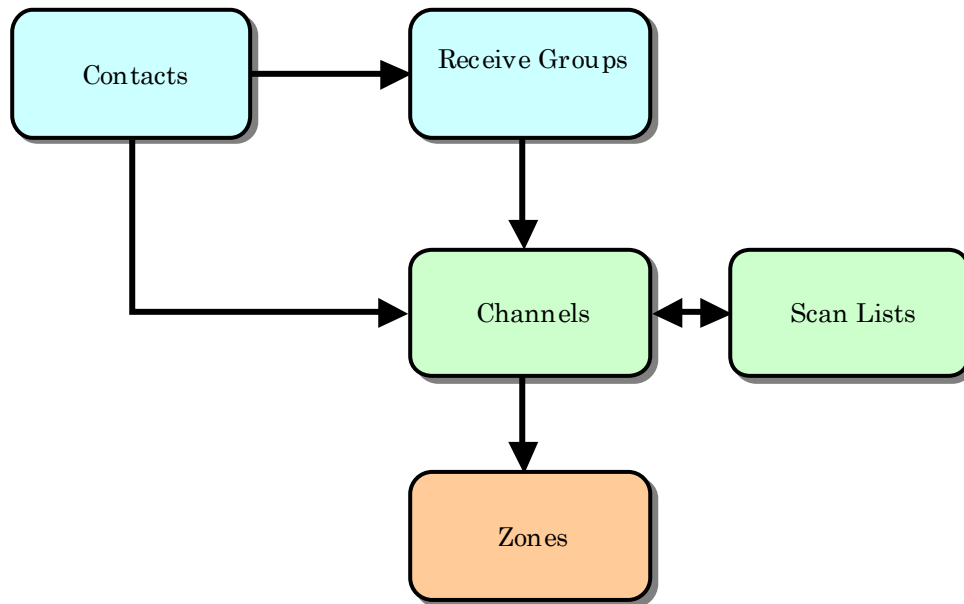


Figure 15: Codeplug Data Dependencies

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 16.

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

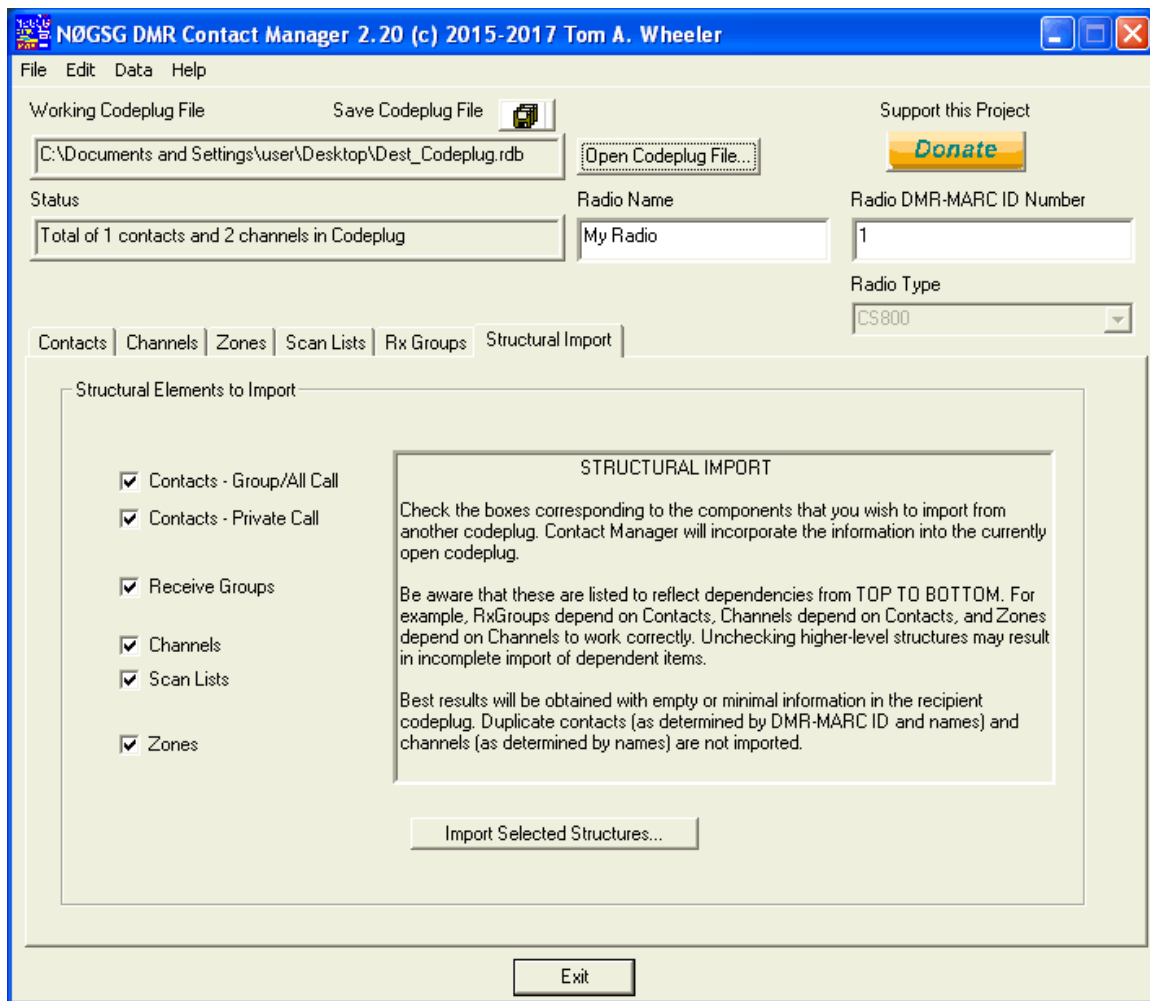


Figure 16: Structural Import Tab

- 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 17.

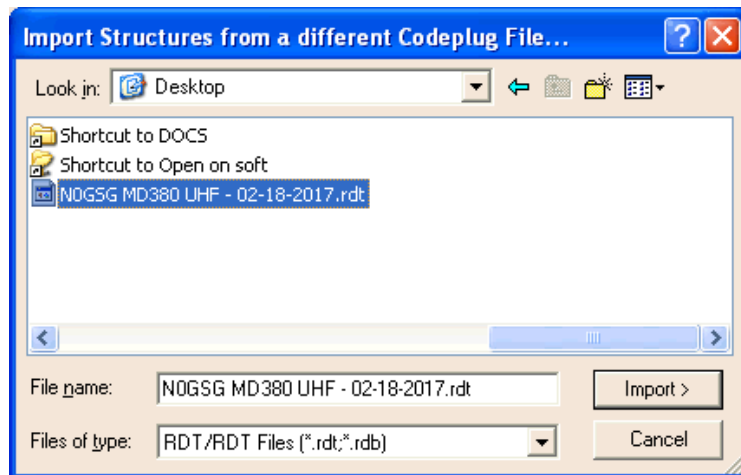
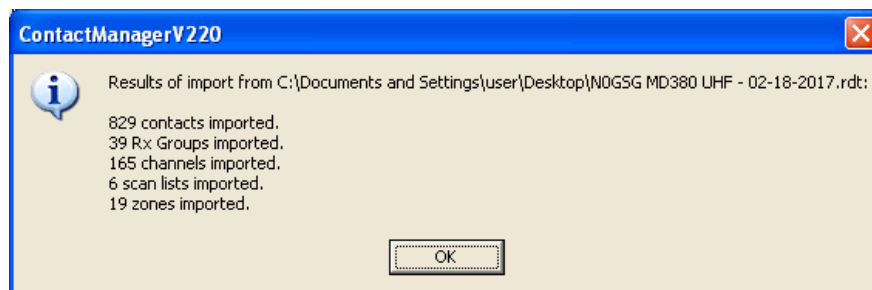


Figure 17: Choosing the Donor Codeplug for Structural Import

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.

TIPS:

1. 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.
2. 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.

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

- Incompatible zone dimensions: Contact Manager uses the rules described in Section 4.4.1 to transform zones as they are moved between codeplugs of different types. As an example, it's physically impossible for a recipient codeplug with 16 channels per zone to store data from a source zone that contains 48 channels.

When doing a Structural Import, all of the source codeplug channels are always transformed and moved, even when the zones are not compatible, assuming that you've asked Contact Manager to transfer the channel data.

The same is not true when a simple copy and paste is executed on zones. What this means is that even if the zones do not transfer completely due to the limitations of the destination codeplug format, you still have all the channels and associated contacts available in the destination codeplug - information that will allow you to quickly and easily construct appropriate new zones containing the necessary channels.

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 (CS750/800/800D) 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!