

SDR # Frequency Manager + Scanner v1.2

User's Guide

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Table of Contents

Introduction.....	2
Features Summary.....	2
New features or improvements in this version.....	2
Frequency Manager.....	2
Scanner	2
Edit Dialog.....	2
Browse Window	3
Features or improvements planned for future versions	3
System Requirements.....	3
Before You Start: Version 1.0 Databases Require Changes	3
Installation.....	4
Installing the software.....	4
Uninstalling the software	4
Modifying/Repairing/Updating the software.....	4
Using the Frequency Manager	4
The Frequency Manager Panel.....	5
Functions in the Frequency Manager Group.....	5
The Edit Dialog.....	6
Editing Single Records	6
Bulk Editing of Frequencies	7
The Browse Window	8
Functions in the Browse Window.....	9
The Groups Window.....	10
Functions in the Groups Window	11
The Protocols Window	11
The Services Window	11
The Scanner	11
Scanner Functions	12
The Database.....	13

Customization.....	13
Troubleshooting	15
Known Issues	16
Appendix.....	16
Default Protocols supplied with Frequency Manager	16
Default Services supplied by with Frequency Manager	17
RGB Numbers for Colors.....	17
Notices.....	17

Introduction

The **SDR # Frequency Manager + Scanner** (called FM in the rest of this guide) is a free plugin designed for use within the SDR Sharp software application. It delivers a full-featured frequency management tool permitting you to manage and browse frequencies and to scan ranges of frequencies or groups of frequencies that you define. Written in C#, it is designed for performance and flexibility.

Features Summary

FM adds a Frequency Manager, a Scanner, and these five windows to SDR #:

- The Edit dialog allows you to add and update frequency records.
- The Browse window lets you browse through your database, selecting and sending frequencies to the radio. You can also filter your database 5 different ways to limit the scope of frequencies that are displayed.
- The Groups window lets you define, edit, and delete frequency group definitions. Frequencies are assigned to groups in the Edit dialog.
- The Protocols window lets you define, edit, and delete transmission protocol definitions, which are assigned to frequencies using the Edit dialog.
- The Services window lets you define, edit, and delete station service-type definitions, which are assigned to frequencies using the Edit dialog.

New features or improvements in this version

There are lots of improvements in this version, many of them based on your suggestions.

Frequency Manager

- New editors for Services & Protocols.
- There's a new indicator showing that you have multiple database records for a frequency.
- Added a configuration setting to disable frequency normalization, to improve flexibility for frequency range scanning.
- Error message improvements for more "friendliness".

Scanner

- Bug fixed: when scanning a Group, it now picks up the Description of the licensee in the Group rather than the Description from the first record in the database with that frequency.

Edit Dialog

- Bulk editing of frequency records is now supported.

Browse Window

- The Edit button and the Edit context menu now support bulk editing of frequency records.
- When hand-entering frequencies or when doing a frequency range scan, and when Live Track is on, the window selects all records matching the current frequency.
- Filter records by text from the Notes field.
- Performance and reliability improvements, plus a few bug fixes.

Features or improvements planned for future versions

- Frequency-range scanning by detecting frequencies above a specified dB strength rather than by stepping through the frequency range.
- Schedule-based tuning.

System Requirements

Basically if you can run SDR Sharp, you can use the Frequency Manager. As with any software, the more capable your hardware the better the software will run.

- OS: Windows XP Pro SP3, Windows 7, or Windows 8. The binaries are compiled for a 32-bit environment for the broadest compatibility but run equally well in an x64 environment.
- Processor: 1-gigahertz processor or faster; 2 or more cores is recommended for suitable performance.
- Memory: 1 gigabyte or more total in the computer.
- Hard Disk: The software requires less than 1MB; the frequency database size is dependent on the number of records. 2000 records will fit in a 620KB database.
- .NET: Version 3.5 runtime as required by SDR Sharp.
- SDR Sharp: Revision 1110 or newer.

Important Note

SDR# is a hobby project created by other people and I am not involved in it. I have no control over changes made to SDR#. I am completely at their mercy as to how their changes affect FM. They are under no obligation to inform me of changes; I won't know if their changes will break my plugins until the plugins are run with the new version of SDR# and you tell me there is a problem. As a result there will be a period after they make a breaking change in which my plugins may not work. Please be assured I will make any necessary changes, and release updates, as soon as practical after SDR# is changed and I have identified the issue.

Before You Start: Version 1.0 Databases Require Changes

You do not need to upgrade your database if you are upgrading from version 1.1. This release of FM requires structural changes to your existing FM 1.0 database, if you have one. The FM 1.0 database will be automatically upgraded. This process has been extensively tested but stuff happens and you should take care to be able to recover from a database corruption.

BACK UP YOUR DATABASE NOW.

REALLY. I MEAN IT.

If you did not previously use the `alternateFMDB` key to customize your database name and location, your database should be in one of these folders:

- In Windows 7 the default folder is `C:\Users\\AppData\Local\SDRSFM\FreqMgr.db`, where `<username>` is your user login.
- In Windows XP the default folder is `C:\Documents and Settings\\Local Settings\Application Data\SDRSFM\FreqMgr.db`, where `<username>` is your user login.

Folders `AppData`, `Local Settings`, and `Application Data` are hidden folders, so you will need to either enable Show Hidden Folders in Windows Explorer or type the path into the address bar of Explorer instead of clicking on folders with the mouse.

Installation

Installing the software

Installation is extremely easy, but you may be required to run the setup program as Administrator. `PluginsSetup.exe` is a typical software installer; use the Next and Back buttons to walk through the setup wizard. Just follow these steps:

1. Unzip the `freqmgr.zip` file to a convenient folder. Do not unzip it to the SDR# folder for this will cause the plugin installation to fail.
2. Run installer program `PluginsSetup.exe`. Click Next.
3. Select the plugins and tools that you wish to install. Click Next.
4. Define the folders into which the software will be installed. Click Next.
5. View the installation summary page and confirm your choices. Click Next.
6. Click Next as needed to complete the installation.

`PluginsSetup` will copy the required files into the targeted folders, alter the SDR# configuration to run the plugins, and create an “SDR# Plugins” folder in your Start Menu.

Hint

Think about making some language-specific customizations before you run FM for the first time. See the Customizations section below.

Uninstalling the software

Run `PluginsSetup.exe` again and clear the checkboxes for the software you want to uninstall.

Modifying/Repairing/Updating the software

Run `PluginsSetup.exe` again. To modify, check or un-check the software you want to add or remove. To repair or update, leave the checkboxes alone; it remembers your last choices and will re-install them as previously selected.

Using the Frequency Manager

Because of the way FM works, you may be required to run SDR# as Administrator.

After installing the plugin, and the first time you ever run SDR Sharp, a Success popup message will appear stating “*The Frequency Manager database was created successfully.*” Click the OK button and SDR Sharp will be displayed with the new collapsible panel containing the Frequency Manager. At this point you may go ahead and use FM, entering and saving frequencies as you work, or you may convert other sources of frequency data and import the frequencies. Please see document “*Frequency Manager + Scanner Tools.pdf*” which is included with the Frequency Manager + Scanner Tools application for more info on importing data.

If you have a FM 1.0 database, a popup will appear stating that the database must be upgraded. Select Yes to upgrade the database (you *did* back it up, didn’t you?) or No to exit out of the upgrade. You will not be allowed to use FM until the database is upgraded. After upgrading a success message will be shown. If you do not see a Success message or the FM panel, or if the FM panel is shown but is completely disabled, please see the section on Troubleshooting.

After your first startup and before you start monitoring is a good time to start customizing Groups, Services, Protocols, and some of the text that goes into dropdown lists or in default texts. See the sections of this document on Groups, Services, Protocols, and Customizations.

The Frequency Manager Panel

The FM collapsible panel contains two groups of controls. The Frequency Manager group displays information about the current frequency and the buttons that open FM function windows. This group automatically tracks and displays the current frequency, center frequency, and mode of the radio; and if the current frequency is in the database its description is displayed in up to three lines of text. A tool tip on the description also displays any notes about the frequency that you have saved in the database.

The Scanner Functions group contains the controls for the scanner. These allow you to fine-tune the scanner performance, select a scan mode, start & stop the scanner, skip a frequency that has the scanner blocked, flag a frequency for later attention, and lock a frequency out of the scanner.

Functions in the Frequency Manager Group

Multiple-Record Indicator

This bold dot to the right of the frequency indicates that your database contains multiple records for this frequency. This is useful because, when hand-entering a frequency or when scanning by frequency range, the Description shown will be that of the first record found in the database for that frequency. Therefore any transmission you listen to may or may not be correctly attributed to the Description shown. There's no way FM can tell from a transmission which licensee is transmitting it; the best it can do is tell you that you have multiple records for that frequency so that you can decide for yourself who is transmitting.

Paste

This small button located to the right of the Multiple-Record Indicator allows you to paste a frequency from the clipboard into the radio. It will attempt to convert what's on the clipboard to a compatible number. If the clipboard contents are not compatible, nothing will happen.

Edit

The Edit button displays the Edit Dialog, described below. The Edit dialog requires you to interact with it before it can close, and it can block other program activities from happening until you close it. The full description of the Edit Dialog is given after this section.

Browse

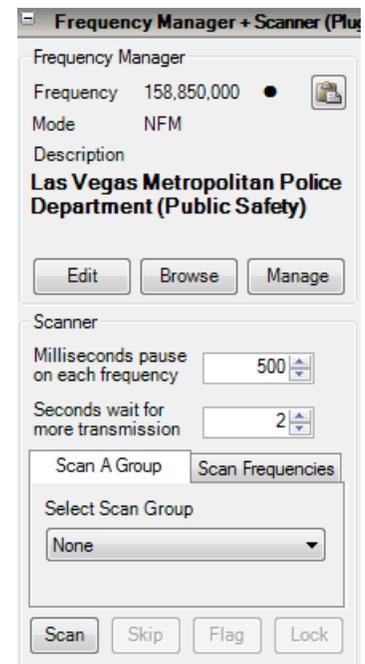
The Browse button displays or hides the Browse window. The Browse window can be displayed and can have activity at the same time as other components. Details of the Browse window are described below.

Manage

This button opens a menu that allows you to select Groups, Protocols, or Services for management. The choice you take will open the editor for that set of data.

Info

This "hidden" function displays information about FM: the version, the date and time it was last modified, the path to the frequency database, the database version number, and a copyright notice. Access this function by



clicking your mouse anywhere in FM and then pressing the three keys Ctrl + Alt + I simultaneously. In a few seconds a popup will display the application information.

The Edit Dialog

Editing Single Records

Clicking the Edit button on the FM panel displays the Edit dialog. The Edit dialog allows you to add and update frequency records. You can also copy the information from an existing record to create a new record. The fields for each frequency are:

- Frequency
- Center Frequency
- Description
- Mode (NFM, AM, etc.)
- Protocol (Voice, P25, POCSAG, etc.)
- Service (Business, EMS, Transportation, Federal, Law Tactical, etc.)
- Callsign
- Frequency Shift
- Filter Type
- Filter Bandwidth
- Filter Order
- Squelch
- CW Shift
- Frequency is locked out of scans
- Frequency is flagged for attention
- Groups to which the frequency is assigned
- Notes

The screenshot shows the 'Edit a Frequency' dialog box with the following fields and values:

Frequency	462,825,000	Center	462,825,000
Description	Anderson Communications, Inc		
Mode	NFM	Protocol	POCSAG
Callsign	WPZS812	Service	Business
Shift	0	Filter BW	12,500
Filter Type	Blackman-Harris	CW Shift	600
Filter Order	400	<input type="checkbox"/> Locked Out of Scans	
Squelch	60	<input checked="" type="checkbox"/> Enabled	<input type="checkbox"/> Flagged
Groups	<input type="checkbox"/> _test <input type="checkbox"/> Aero <input type="checkbox"/> Ambulance <input type="checkbox"/> Clark County Misc <input type="checkbox"/> Education <input type="checkbox"/> Emergency Services <input type="checkbox"/> Federal		
Notes	Las Vegas, NV		

Buttons: Add, Update, Cancel

The Edit dialog has basic error checking to ensure that you are entering data appropriate to the field. If you enter inappropriate data, a red circle with an exclamation mark  appears next to the field. If you let your mouse pointer hover over the red circle it will display a message about the error. You cannot move to another field until the error is corrected, and you cannot save a record when there are errors. Not all fields require "correct" input; for example you can enter any text in Description or even leave it blank. Every numeric field except Shift requires a value in a range compatible to that required by SDR Sharp.

Clicking the Add button will create a record. Clicking the Update button will update an existing record, and clicking the Cancel button will exit without saving any data.

If the Edit dialog was launched from the FM panel, and if you are editing a frequency that is not yet in the database, the Update button will be disabled. If the frequency is in the database both the Update button and the Add button will be enabled. This permits you to change the current record or to create a new record while copying data from the current one. The Edit dialog will not prevent you from Adding a record identical to one already in the database having the same frequency; the design assumption is that there will be cases where you will find two or more stations on the same frequency because this situation is common in HF reception.

Some notes about the fields on the Edit dialog:

- Description and Notes are free-form text and support up to 32,767 characters.
- The Notes field supports multiple lines of text; just press the Enter key to start a new line.
- The Protocol field is prepopulated with over 140 popular transmission types from which to choose, spanning those commonly used in HF through UHF frequencies. See the Protocols Window section in this document to get info on how to edit this data. See the Appendix for a list of the default protocols provided.
- The Service field is prepopulated with over 30 popular services from which to choose, broadly based on the services defined by the U.S. Federal Communications Commission. See the Services Window section in this document to get info on how to edit this data. See the Appendix for a list of the default services provided.
- Mode and Filter Type provide the same options as SDR Sharp.
- The Groups field will be blank until you create groups, at which point it will be populated with a list of checkboxes that you can use to assign or dissociate groups for the frequency. You may select no groups for a frequency or as many as you please; do what is meaningful to you. If you add or edit a group name using the Groups window while Edit is open you will need to close and reopen the Edit dialog to pick up the Groups change.

When you close the Edit window, its position is remembered for the next time you use it.

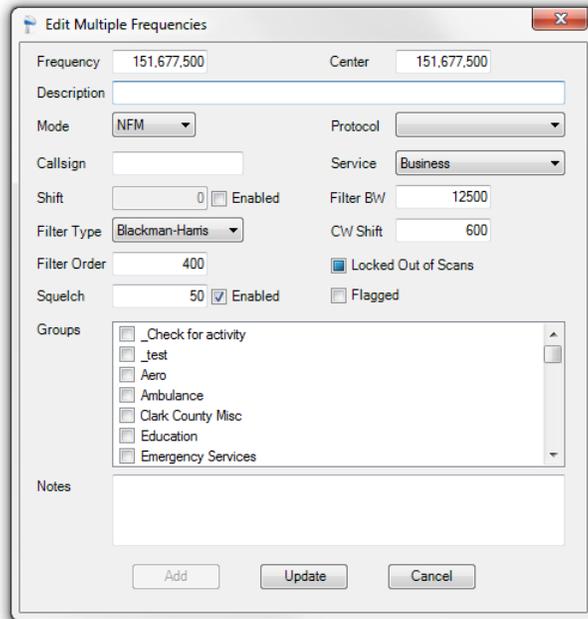
Bulk Editing of Frequencies

You may edit multiple frequencies at once when you select multiple records in the Browse window and click its Edit button or Edit context menu. An example of this might be when you want to change the Service type for a number of frequencies simultaneously.

Caution

You can ruin quite a lot of frequency records at one time if you aren't careful with the bulk editing feature. **Anything you change here will be changed in all the selected records.** Be sure of your changes before you commit them by clicking the Update button.

When bulk editing, the Edit dialog behaves a little differently. When all the frequencies being edited have the same value in a field, the field will display the common value. If the frequencies have *different* values in a field, the field will display as a blank. As an example consider the following Edit dialog:



In this illustration the selected records all share the same Frequency, Center, Mode, Service, Shift, Shift Enabled, Filter BW, Filter Type, CW Shift, Filter Order, Squelch, and Squelch Enabled.

However they have different Description, Protocol, Callsign, and Locked values, so those text boxes and dropdowns are blank.

Please note the Locked checkbox. In this dialog all checkboxes (Locked, Shift Enabled, etc.) are what is called “Three-State” checkboxes – meaning they can be checked, unchecked, or ‘indeterminate’. When some of the selected frequencies have a checkbox checked and others don’t, the result is indeterminate. How this state is displayed depends on your version of Windows. On my Windows 7 computer these are shown as a checkbox filled with a solid color. On other Windows operating systems, they are shown with a ‘ghosted’ checkmark in the box. So, in this example some of the selected frequencies were Locked and others were not.

Whatever you change in this dialog will be changed in all the selected frequencies – the original values will be permanently overwritten, except for Groups which are a special circumstance. When editing multiple frequencies all the Group selections are shown as unchecked regardless of what groups are assigned to those frequencies. If you check one or more Groups when bulk editing, the Group(s) will be added to those of each of the frequencies rather than replacing them. So if one of the edited frequencies already has Education, and you select Transportation in the bulk edit, that frequency will end up with both Education and Transportation.

To abandon any bulk-edit changes, click Cancel. To apply bulk-edit changes, click Update. You will be prompted to confirm that you want to change multiple records.

When bulk editing, the same data validations apply as when editing a single record.

The Browse Window

This window displays a grid of all frequencies in the FM database. All of the data entered for a Frequency is displayed plus the date the record was added or last updated.

- The grid scrolls vertically and horizontally so you can access the information. You may also change the size of the window, which will adjust the size of the grid accordingly.
- You may sort the contents of a column in ascending or descending order by clicking the column's header. The default sort order is by Frequency ascending.
- You can reorder the columns. To move a column left or right in the grid, left-click on its header text and drag the header to a divider between two other columns. The target divider will change color to help you see the drop point.

Frequency	Description	Mode	Protocol	Call Sign	Service
461,487,500	Sun Communications Inc	NFM	Unidentified	WPCC997	Business
461,500,000	Bell Trans	NFM	Voice	WPUL438	Business
461,512,500	Fisher Wireless Services, Inc.	NFM	Voice	WQEG309	Business
461,525,000	Hard Rock Hotel Inc	NFM	Voice	WPPU637	Business
461,537,500	Hyatt Corporation Agent of Montelago Hotel	NFM	Voice	WPWL469	Business
461,550,000	Anthem Country Club	NFM	Voice	WQPE749	Business
461,562,500	3-Tumbery Place Condominium Association	NFM	Voice	WQAI946	Business
461,575,000	Las Vegas Ski & Snowboard Resort	NFM	Voice	WQMP501	Business
461,587,500	CCSD - Green Valley High School	NFM	Voice	WQJL559	Business
461,600,000	Boulevard Investment	NFM	Voice	WPRH264	Business
461,612,500	Hyatt Corporation Agent of Montelago Hotel	NFM	Voice	WPWL469	Business
461,625,000	Bear's Best Las Vegas, LLC	NFM	Voice	WQGM716	Business
461,637,500	Fisher Wireless Services, Inc	NFM	Voice	WPMY222	Business
461,650,000	Clark County School District	NFM	Voice	WQNK370	Business

When the column header is in the desired position, release the mouse.

- You can resize the columns by letting your mouse pointer hover over the divider line between two column headers. The mouse pointer will become a left-right pointing arrow. Left-click the divider and drag it left or right to narrow or widen the column. You may also make a column fit its contents by double-clicking the divider. Column sizes and order are remembered for use the next time you open the Browse window.

A helpful feature of the Browse window is that it can track the frequency in SDR Sharp "live"; when you enter a frequency in SDR Sharp, or select one by panning the spectrum window, or scan to a known frequency, the Browse Window positions itself to that frequency if it is in your database.

Functions in the Browse Window

Live Track

This button enables or disables the live track feature that makes the grid auto-scroll to the frequency currently being monitored. This button latches state as either pressed or released - when it is pressed the grid tracks the frequency changes of the scanner or the spectrum analyzer; when released it does not, and this makes it easier to browse or bulk edit frequencies while the scanner is running.

Hint

Live Track is a very useful feature because it highlights the frequency currently being monitored. However, this comes at the potential price of reduced radio performance and higher computer CPU usage. On lists long enough to require the grid to scroll vertically, or Browse windows that show lots of rows and columns, "repainting" all the data and colors can cause the radio to pause until the grid is finished. Whether or not this affects you depends completely on your computer hardware and video drivers. If you find that the radio pauses during Browse window repainting, or if the Browse window contents get garbled, turn off Live Track and use the Refresh button periodically to force the grid to reload from the database.

Edit

You may launch the Edit dialog from the Browse window. It behaves the same as when launched from the FM panel, with the exception that the Add and Update buttons are always enabled when editing a single frequency.

Delete

The Delete button allows you to delete a frequency or a set of selected frequencies. A confirmation popup will appear. Deleting a frequency whose data is currently set in the radio will not result in changes to the radio settings. Deleting a frequency cannot be undone.

Send to Radio

You can send the selected record to the radio using the Send to Radio button; but you can also do this by just double-clicking the selected row. The button is disabled if you have selected multiple rows in the grid.

Refresh

This button tells the grid to throw away all of its data and completely reload from the database. Use of the Refresh button is always optional, but if you have Live Track turned off during a frequency range scan this can update the grid with the latest frequency data.

Close

Closes the Browse window; the window remembers its current size and position for your future convenience.

Filter

You have three filtering fields in the window which provide five filters:

- Filter by Freq/Text will let you enter a Frequency, text from the Description field, or text from the Notes field; the filter will dynamically narrow the list of results. You can click the ✕ button at the right end of the field to remove the text filter.
- The Filter by Group dropdown will allow you to choose a group from those you have defined. The grid will then display only those Frequency records which are assigned to the chosen group. Remove the group filter by changing your choice to "None".
- The Filter by Flagged/Locked dropdown lets you ignore either attribute, show only the Flagged frequencies, or show only the Locked frequencies.

Context Menu

Right-clicking a row or selected rows on the grid displays a context menu with the following options:

- Edit: Displays the Edit dialog.
- Delete: Displays the Delete confirmation, which will prompt you to approve deletion of the selected record(s). Upon confirmation the record(s) will be deleted.
- Add to Group: Displays a sub-menu listing all of the available Groups. If you have selected multiple frequencies in the grid all will be assigned to the selected group.
- Remove from Group: Displays a sub-menu listing all of the available Groups. If you have selected multiple frequencies in the grid the selected group will be removed from all of them.

The Groups Window

The Groups window lets you create and edit labels by which you can group frequencies. This is a traditional editable grid. The text can be anything meaningful to you; for example in Las Vegas where I live I have groups for Metro Police, Resorts, and County government, among others.

Adds, Edits, and Deletions of groups are automatically propagated to the Scanner's Scan Group list, and to the Browse window's Group list if the Browse window is open.

Functions in the Groups Window

Add

To create an entry, select the last row of the grid (by default it is empty) and start typing. The entry will be saved automatically when you move off the row. If you need to abandon your entry before saving, press the Escape key on your keyboard.

Edit

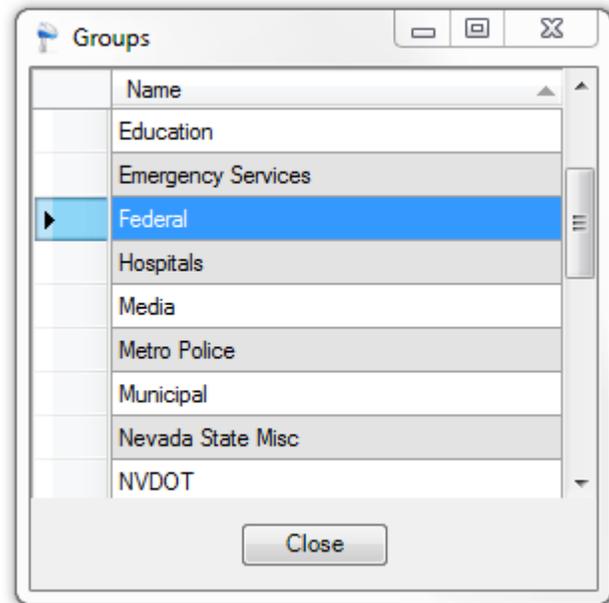
To edit an entry, select the desired row and start typing. The entry will be saved automatically when you move off the row. If you need to abandon your change before saving, press the Escape key on your keyboard.

Delete

To delete a row, select it and press the Delete key on your keyboard. A confirmation prompt will be displayed.

Close

This button closes the Groups window; the window remembers its current size and position for your future convenience.



Note

There was a request to permit combining Groups for scanning. This is easily achieved using the existing Group system and the Browse window. For example assume you have Groups named "Police" and "Fire". You want to combine them to make one scanning group. Simply create a third Group named "Police and Fire". Then:

1. Using the Browse window, filter the grid to show the group Police.
2. Select all the frequencies in the grid, right-click to display the context menu, select Add To Group, and then select "Police and Fire".
3. Repeat steps 1 and 2 with the Fire group and you will have a group containing both Police and Fire in addition to the original two groups.

The Protocols Window

This window works the same way as the Groups window (see above) but displays the different transmission protocols you can assign to a frequency – like Voice, POCSAG, RTTY, etc.

The Services Window

Likewise the Services window works the same way as the Groups window (see above) but displays the different Services you can assign to a frequency – like Business, Law Dispatch, Aero, etc.

The Scanner

The scanner allows you to select and scan a Group of frequencies that you have already defined, or a range of frequencies that you specify. Depending on the performance of your computer and receiver, you can scan up to 1000 frequencies per second. The scanner cannot be used when using "IQ File" or "Other" signal sources.

If the Browse window is open and Live Track is enabled, you will see the frequencies rotate through the Browse window as the scanner selects them. Please see the Hint box at the description of the Live Track button, above, for useful information.

When using the scanner it is a good idea to crank the SDR Sharp Speed track-bar to the fastest speed at which it is reliable for your radio and computer. If your radio can respond quickly enough to frequency changes, this higher performance makes the “active frequency” detection more reliable and therefore lets you scan faster.

Scanner Functions

Milliseconds pause on each frequency

This control lets you define the amount of time in one-thousands of a second that you want the scanner to pause on a frequency to determine if it is in use. The minimum is 1 millisecond (.001 second) and the maximum is 30,000 (30 seconds). The lower the value the faster the software will scan; however if your receiver can't keep up you will miss transmissions.

Seconds wait for more transmission

Transmissions are sometimes conversations, often between a base station and a mobile unit. You probably want to hear both sides of the conversation, and there is often a couple of seconds of pause between each side of the conversation, so set this value to wait long enough to allow a response in the conversation before moving on. The minimum value is 0 seconds and the maximum is 600 seconds (10 minutes).

Scan Mode

This is a pair of tabs that allow you to select the scan mode: scan by a specified group or scan by a specified range of frequencies.

- Scan A Group: In order to use this function, you must first have assigned frequencies to one or more groups as described previously. The Group you wish to scan can be selected in the dropdown list. As a practical matter, avoid making huge groups for scanning; even at 100 frequencies per second you are probably going to miss a transmission because the scanner is currently (for example) 80 frequencies away from the one that is active.

Hint

Group management is a key part of group scanning. I find it useful to have a group containing all the frequencies I can find for that group just so they are organized for the Browse window; and I make a *second* group containing a subset of the first group, limited to the most active or interesting frequencies. For example I have a group named “Emergency Services” that contains 100 frequencies and a subset named “Scan Emergency Services” that contains the 20 most active frequencies. By limiting the scope of a Group scan you improve Group scanning performance.

- Scan Frequencies: To scan a range of frequencies take the following steps:
 1. Select a Mode in the Radio (NFM, AM, etc.).
 2. Select the desired step size for that mode in your country.
 3. Set the Squelch threshold as desired.
 4. Enter the starting Lower Frequency and the ending Upper Frequency. Whatever you enter will be normalized when you click Scan to a correct figure based on the currently selected Step Size in the radio. For example with a Step Size of 12.5 KHz, a Lower Freq of 160,606,000 Hz will be normalized downward to 160,600,000Hz and an Upper Freq of 161,117,205 will be normalized upward to 161,125,000 Hz. This normalization ensures that scanning will fall on valid frequencies based on the selected Step Size. The normalization feature can be disabled; see the Customizations section of this document.
 5. Putting a checkmark next to “Log new Freqs to Database” will cause the scanner to automatically create new frequency entries in the database when a previously-unknown frequency is found.

 **Hint**

By default automatically-logged new frequencies have a Description of “Unidentified. Found during frequency scan”. This text can be changed to suit your preferences or language; please see the Customization section of this document.

 **Hint**

When performing a frequency range scan, the scanner tries to match the frequency in the radio to one in your database. If there is a match, the database contents are copied to the radio – squelch, filter type, etc. However the Mode setting is *not* sent to the radio because SDR# will change the Step Size to match the new Mode thereby throwing your scan increment off.

Scan button

The scan button starts and stops the scanning action. Scanning begins after a 1-second delay to allow the radio to start. When scanning, the other controls in the Scan Functions group are disabled (except for the Skip, Flag, and Lock buttons). The button latches state as pressed or released.

Skip button

Sometimes when scanning you will land on a busy frequency or one that has a long-winded and boring conversation. Clicking the Skip button tells the scanner to move on to the next frequency.

Flag button

The Flag button marks the frequency *currently in the radio* as something “interesting” that you wish to follow up on later. These frequencies can be easily found in the Browse window by using the Flagged/Locked filter. In the Browse window these are also colored differently than “normal” frequencies; by default standard Windows colors are used but the colors can be customized to your liking. See the section on Customization in this document.

Lock button

The Lock button marks the frequency *currently in the radio* as locked out of future scans by Group or by Frequency Range, then skips to the next frequency. The lock takes effect immediately; the next time the current scan hits a locked frequency it will be skipped. These frequencies can be easily found in the Browse window by using the Flagged/Locked filter. In the Browse window these are also colored differently than “normal” frequencies; by default standard Windows colors are used but the colors can be customized to your liking. See the section on Customization in this document.

The Database

The database is built using the [SQLite database engine](#), version 3.7.12.1. It is created in the logged-on user’s local data folder; see the “Before You Start: Version 1.0 Databases Require Changes” section of this document for the database location.

If you wish to use a different location or want to use different databases for different copies of SDR# with FM, instructions are in the Customization section of this document.

You must have adequate permissions to the database folder to create or update the database.

Customization

I’ve provided a number of customization points in the configuration. You may edit these to suit your preferences. **EDIT THE CONFIGURATION FILE AT YOUR OWN RISK.** You can cause enough damage to it make so

unusable that SDR# will not run. If you break it neither the authors of SDR# nor I will be able to help you; you will have to restore from a backup or re-install SDR# and the plugins.

The configuration file is named "SDRSharp.exe.Config". It is located in the same folder as SDR#.

BACK UP YOUR CONFIGURATION FILE NOW.

The configuration file can be edited with any simple plain-text editor. Notepad or something equivalent will work fine. The fancier the editor (for example Microsoft Word) the more chances you have to break something. You may need Administrator permissions to edit the file.

All of the customizations that you can edit start with `<add key="freqMgr`. These entries each have a *key* which is its name between double quotes, and a *value* which is also between double quotes.

- When editing, do not change the key. If you do, that feature will no longer work.
- Change the value as desired. The value must be enclosed in double quotes.
- Do not change any other lines in the configuration; you may break the plugins or SDR#.
- Do not remove the empty double quotes when there is no value. They are required for proper operation.
- Save the file when you are finished.

The following table describes the customizations you can make. In the configuration file look for `<add key="` followed by the name in the Key column below.

Option	Key	Default Value	Customization
Alternate database	freqMgrAlternateDb	Empty quotes	Enter the full path and name to the desired database file.
Flagged Frequencies colors	freqMgrFlaggedFreqBackColor freqMgrFlaggedFreqForeColor	Empty quotes; the Windows default colors will be used	Enter RGB numbers for the desired values. See the Appendix.
Locked Frequencies colors	freqMgrLockedFreqBackColor freqMgrLockedFreqForeColor	Empty quotes; the Windows default colors will be used	Enter RGB numbers for the desired values. See the Appendix.
Text meaning "None", used in dropdown lists	freqMgrNoneText	"None"	Enter the desired text instead of the word "None".
Text meaning Unidentified frequency found during scan	freqMgrUnidFoundMessage	"Unidentified. Found during frequency scan."	Enter the desired text.
Text meaning "Unidentified", used in dropdown lists	freqMgrUnidText	"Unidentified"	Enter the desired text.

Option	Key	Default Value	Customization
Enable scan frequency normalization	freqMgrNormalizeScanFreqs	"true"	When true, the entered frequencies will be rounded to match the step size when the step size is greater than 6.25kHz. Set to false to disable this feature. You may need to also clear the "Snap to Grid" checkbox in SDR# for this configuration to be effective.

Troubleshooting

I wish I could say that there will never be any challenges, but in reality stuff happens. Please try the following remedies if you have these problems.

Problem	Potential Solution(s)
A popup appears with the message <i>"An error occurred. The error was:"</i> followed by <i>"Cannot set the center frequency when no front end is connected"</i> .	You cannot scan unless a radio is selected as the signal source. Drop down the source list (next to the Play button) and select a radio.
A popup appears with the message <i>"An error occurred. The error was:"</i> followed by <i>"Method not found"</i> .	Your copy of SDR# is too old to be used with this version of the plugin. Please refer to the System Requirements section of this Guide.
A popup appears with the message <i>"An error occurred. The error was:"</i> followed by <i>"SQLite error no such column: locked"</i> .	File System.Data.SQLite.dll did not get installed into the SDR# folder, or was installed but is locked by Windows so that it cannot be accessed. <ul style="list-style-type: none"> • If it was not installed, uninstall all of the plugin software. Make sure you have Modify or Full Control access to the SDR# folder, and attempt to install the software again. • If instead the file was locked by Windows, right-click the file and select Properties from the menu. On the General tab, if there is an "Unblock" button, click it – then close the Properties window and try to use the plugin again.
A popup appears with the message <i>"An error occurred. The error was:"</i> followed by some technical information.	This is rare and usually happens when there is a problem with the database. Stop and close SDR Sharp. Make sure no other processes are using the database – for example a backup or database editor. Restart your computer if necessary to be sure. If that doesn't fix the problem, ensure that you have sufficient Windows permissions to alter the database and the folder that contains it. If the problem continues please send an email which includes all of the text in the popup plus the steps you took to get to the error to the address on the 1 st page of this document.
A popup appears with the message <i>"The Frequency Manager database exists but it is damaged. Do you want to delete it and create a new database?"</i>	During startup FM detected that the database exists but appears to be corrupt. Your options are: <ol style="list-style-type: none"> 1. Click Yes to continue and replace the damaged database with an empty one. You will have to rebuild your data. 2. Click No, exit SDR Sharp, and restore the database from a backup.

Problem	Potential Solution(s)
The Frequency Manager + Scanner panel does not appear.	File "SDRSharp.exe.config" has been altered or corrupted. You may need to reinstall.
The Frequency Manager + Scanner panel is disabled; no controls can be used.	Some critical error was detected that would prevent FM from working correctly. When this happens you normally will see an error message before SDR# finished loading. Some reasons for this can be: <ol style="list-style-type: none"> 1. The FM database is unusable. 2. FM could not be loaded, usually due to a configuration error or a problem with the database software or the .NET runtime software. You may need to reinstall FM or .NET.
I looked in SDRSharp.exe.config and found an entry named "freqMgrBrowseColumnsConfig" and there is a lot of garbage text after it.	This is intentional! That "garbage text" is actually the configuration data of the Browse window columns (their position and size) converted into text so that it can be stored in the configuration file.
Popup Errors are shown	If it is an FM error, it will contain details. Copy the details and email them to the address at the top of this document.
Some other popup or error appears.	Uninstall FM and restart SDR Sharp. If the problem continues it must then exist only in SDR Sharp and its related software, and not in FM.

Known Issues

- Browse window: on some PCs with older video cards or slower video drivers, the browse grid doesn't grow properly when the Browse window is enlarged. The workarounds are:
 - Minimize and restore the window, or...
 - Close and reopen the window, or...
 - Click the Refresh button to force the grid to reload from the database.

Appendix

Default Protocols supplied with Frequency Manager

- | | | | |
|-------------|--------------------|---------------|------------|
| • 110A | • CHIP | • DAB | • FMHELL |
| • 1382 | • CONTESTIA8/250 | • DominoEX-11 | • FMNARROW |
| • 141A | • Contestia8/500 | • DominoEX-16 | • FMWIDE |
| • 4285 | • Contestia16/500 | • DominoEX-22 | • GMDSS |
| • ACARS | • Contestia3211000 | • DominoEX-4 | • HELL80 |
| • ALE400 | • Contestia4/125 | • DominoEX-5 | • HFFAX |
| • AM | • Contestia4/250 | • DominoEX-8 | • HFDL |
| • AMTOR-ARQ | • Contestia4/500 | • DominoF | • IEC870-5 |
| • AMTOR-FEC | • Contestia8/1000 | • DTMF | • JT65 |
| • ARQ-E | • Contestia16/1000 | • ERMES | • Lentus |
| • ASCII | • Contestia8/2000 | • FEC31 | • LSB |
| • BPSK125 | • Contestia16/2000 | • FELDHELLX5 | • MFSK-16 |
| • BPSK250 | • Contestia3212000 | • FELDHELLX9 | • MFSK-32 |
| • BPSK31 | • Contestia64/2000 | • FSKHELL105 | • MFSK-4 |
| • BPSK63 | • COQUELET | • FSKHELL245 | • MFSK-64 |
| • CCW | • CW | • FLEX | • MFSK-8 |

- MOBITEX
- MT63-1000
- MT63-2000
- MT63-500
- NAVTEX
- NWR
- Olivia8/250
- Olivia8/500
- Olivia16/500
- Olivia32/1000
- Olivia4/125
- Olivia4/250
- Olivia4/500
- Olivia8/1000
- Olivia16/1000
- Olivia8/2000
- Olivia16/2000
- Olivia32/2000
- Olivia64/2000
- P25
- PACKET
- PACTOR
- PAX
- POCSAG
- PSK10
- PSK220F
- PSK63F
- PSKHELL
- PSK63FDIGISSTV
- PSKAM10
- PSKAM31
- PSKAM50
- QPSK125
- QPSK250
- QPSK31
- QPSK63
- QRSS
- RTTY100
- RTTY110
- RTTY150
- RTTY200
- RTTY45
- RTTY50
- RTTY75
- RTTYM8/250
- RTTYM8/500
- RTTYM16/500
- RTTYM32/1000
- RTTYM4/125
- RTTYM4/250
- RTTYM4/500
- RTTYM8/1000
- RTTYM8/1000
- RTTYM8/2000
- RTTYM16/2000
- RTTYM32/2000
- RTTYM64/2000
- SELCAL
- SITORA
- SITORB
- SLOWHELL
- SSTV
- SYNOP
- THOR16
- THOR4
- THOR8
- THROBX-1
- THROBX-2
- THROBX-4
- THROB-1
- THROB-2
- THROB-4
- Unidentified
- USB
- Voice
- WEFAX-IOC288
- WEFAX-IOC576

Default Services supplied by with Frequency Manager

- Aeronautical
- Business
- Broadcast
- Corrections
- Data
- Emergency Ops
- EMS Dispatch
- EMS Tactical
- EMS Talk
- Federal
- Fire Dispatch
- Fire Tactical
- Fire Talk
- Ham
- Hospital
- Interop
- Law Dispatch
- Law Tactical
- Law Talk
- Maritime
- Media
- Military
- Multi-Dispatch
- Paging
- Public Safety
- Public Works
- Schools
- Security
- Standard Frequency
- Transportation
- Trunked
- Unidentified
- Utilities

RGB Numbers for Colors

RGB is an acronym for “Red, Green, and Blue”, and describes a color model in which those three colors can be added together to get all other colors. It is beyond the scope of this guide to tell you how to create RGB colors, but there are many sites on the Internet that allow you to select a color and then will tell you the RGB value. In FM these values are always entered in 6 hexadecimal digits (0 through 9, followed by A through F), for example “FFFF00” for a bright yellow. Do an Internet search for “RGB color selector” to try out some sites. If you completely mess it up, delete all the digits in the value leaving only the double quotes; FM will again use the Windows color defaults for your desktop theme.

Notices

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