

Data Tools Wizard

User's Guide

Copyright © 2022 Jeff Knapp N8GJL sdrs.freqmgr@cox.net

Table of Contents

Introduction	1
System Requirements	1
Using Data Tools.....	2
The Data Tools Wizard	2
Selecting an action	2
Appendix	7
Generic File Import Fields and Data Types	7
Troubleshooting.....	8
Error Messages.....	8
Known Issues.....	9
Notices	9

Introduction

The **FMSuite Data Tools Wizard** (called DT in the rest of this guide) is a utility program designed to download and import frequency databases for use within the Frequency Manager + Scanner (called FM in the rest of this guide). It gives you a choice of importing several internet databases, importing the default SDR# Frequency Manager's database, importing a generic file, and exporting an FM database to a generic file.

System Requirements

Basically, if you can run SDR Sharp, you can use DT. You must have:

- **SDR Sharp:** Revision 1893 or newer.
- **FMSuite:** version 2.3 or newer.

Important Note

SDR# is an application 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 DT. They are under no obligation to inform me of changes; I won't know if their changes will break my software until the software is 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 software 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.

Using Data Tools

Data Tools is a free plugin for SDR#. It provides a way to download frequency databases from the internet and import them into an FM database for use in the Frequency Manager + Scanner plugin. It also permits you to import data from a generic data file format and to export an FM database to a generic file format. Data Tools operates as a wizard; you make choices, fill in some blanks, and it takes care of the rest.

The Data Tools Wizard

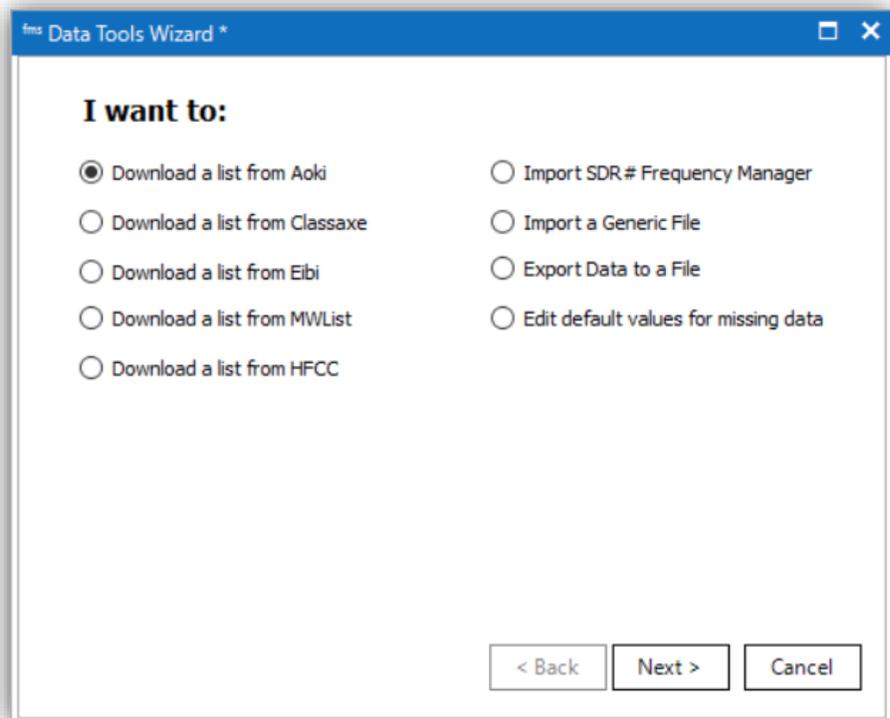
Selecting an action

Download a database from the Internet

Data Tools already knows about several popular frequency databases on the Internet and lets you download and import them into a Frequency Manager + Scanner database.

The download function has 4 steps. The amount and type of information required for a download can vary according to the desired database. To move between steps, simply click the Back and Next buttons.

1. Select an Internet database to download and click Next.
2. Select an FM database in which to store the data. If you specify a filename that doesn't exist you will be prompted for permission to create it.



However, if the selected FM database exists, and it already contains data from the selected internet database, an additional choice is presented to you: Append the download to the existing data or Replace the existing data with fresh data from the download. Click Next after you make your choice.

3. Specify the Internet download address (the *URL*) of the database. DT comes with these addresses already supplied; however, many databases change their URLs periodically, so if you type the new URL here it will be saved for the next time you wish to download the data. Click Next to proceed.

4. The download will start and a progress bar will display. When the data is fully downloaded and imported the wizard's "Finished" page will display.

The Classaxe download needs to know which of three databases you want to download: Europe, North America, or World Wide. The last choice combines the first two choices into one file and will take longer to download.

All database downloads test the download URL before requesting the download. In this manner DT tries to let you know of any issues with the URL before committing to a download.

The MWList download may require much more time to respond to the URL request than other databases so you may see additional text on the URL wizard page that says "Validating the URL. This website may take a few minutes, so please be patient." When the MWList download progress page displays you may see the text "Download Requested. This may take a few minutes" before the progress bar starts to increment.

Select AOKI database

Select a database:

That database contains data. I want to:

Append download from Aoki to existing data (may create duplicates)

Replace existing data from Aoki with a new download

Select Aoki options

URL to Aoki file:

Select Classaxe options

URL to Classaxe file:

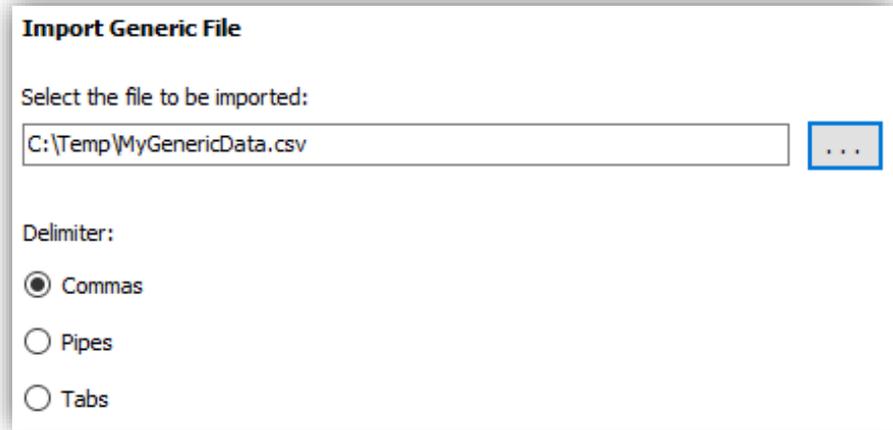
List Type:

Note

Some internet data may contain unusual characters, like empty rectangles, a black diamond with a white question mark, etc. These characters are "extended" characters that are culture-specific, part of the downloaded data, and not created by Data Tools. If you were in a country for which these data were intended the odd characters would look correct.

Importing a Generic File

The choice “Import a Generic File” permits you to take a delimited file from any source and import it into an FM database. There are necessarily some restrictions which are quite common with generic files, and they are described here to help you format your file properly.



1. Delimiters are the characters in a generic file that separate one data field from the next. DT supports 3 kinds of delimiter characters:
 - o Commas
 - o Pipes (the vertical bar: |)
 - o Tabs
2. If comma delimiters are used, text fields containing commas must be surrounded by the double-quote character ("). For example, if the City of a radio station is Las Vegas, NV the field in the Comma-delimited generic file should look like this:

, "Las Vegas, NV" ,

With other data fields before and after the City. Numeric and date fields do not require surrounding double-quote characters but do require a delimiter between fields.
3. Any one frequency's data must be all in one line of content in the generic file. The end of the line must be marked with a carriage return and a line feed.
4. The fields in your generic file must be in a specific sequence and each field must be a specific data type. See the Appendix for a table that describes the field sequence and data types.
5. Most of the fields in the file are optional; if you have no data for a field, field delimiters are still required but you may simply leave it with no content between the field delimiters.
6. In the Appendix, fields with the highlighted words **Data Required** must have valid data in them.
7. You may import a list of Groups by combining them into a list of Groups separated by a caret character ("^"). For example, you might have the local Police helicopters in your source data assigned to the groups "Police" and "Aero". To import these into an FM database, format this as the two words separated by a caret:

, "Police^Aero" ,

As the generic data is read from the file, each line is checked to ensure it is acceptable. Any lines that are not acceptable will be displayed in an error message containing up to 10 of such lines. Any line in which the Frequency value cannot be interpreted as a number will be skipped.

One more thing – having the first line of your file filled with the names of the fields is optional. DT doesn't require it, and will ignore it if it is found.

i Important Note

Do not use Microsoft Excel to edit or create CSV files. Excel will not surround text fields with double quotes, and will “helpfully” garble your data by converting large numbers like frequencies into scientific notation and by removing leading zeros from other numbers. If you must edit a CSV file, try one of the several free CSV editing programs available on the Internet.

Exporting a database

When exporting an existing FM database, you perform these steps:

1. Select the FM database that you wish to export.
2. In the Export Options step of the wizard, specify the file to export the data into. The other options here are:
 - Your choice of **Delimiter**:
 - Commas
 - Pipes (the vertical bar: |)
 - Tabs
 - **Include Column Headings** will put the column names in the first row of the file.
 - **Enclose text in double quotes**: this is highly recommended for the best compatibility with other software.
 - **Remove Special Characters**: this too is highly recommended because it will remove characters from your text that might cause problems with the software that ultimately imports the file. For example, double quotes inside text data are converted to single quotes.
3. After clicking Next on the Export Options page your file will be created.

The export includes the Group(s) you have defined for each frequency. If you have defined more than one Group for a frequency all of the groups will be listed in the Groups column of the exported data as a single list; the Group names in the list will be separated by the caret symbol (“^”). For example:

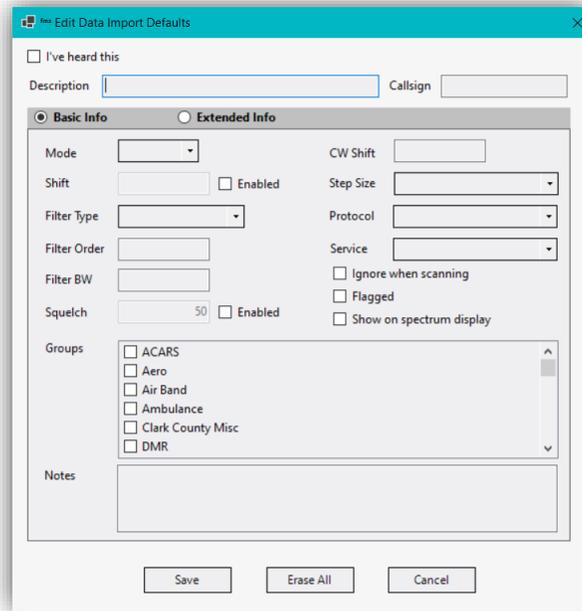
, “Clark County Misc^Transportation^Aero” ,

The caret symbol is used instead of commas or other common punctuation in order to avoid confusing the application into which you import this exported data; if commas or other common punctuation were used, and if you did not choose **Enclose text in double quotes**, the groups would throw off the column alignment of the remaining columns on each row and your data import would not give the desired results.

Edit default values for missing data

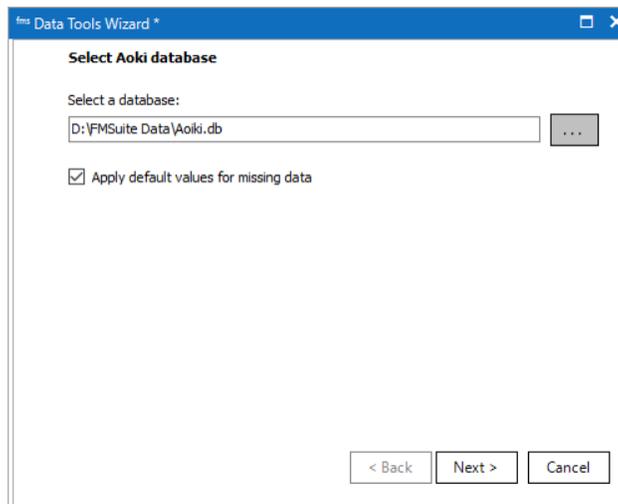
Sometimes a downloadable database will not contain all the data you would like. Using this option you may define default values for missing data before performing a download. When the database is downloaded, missing data from the internet file will be replaced with your default values.

Select this option and then click the Next button. A window will appear which looks similar to the Edit window of the Frequency Manager + Scanner. You may enter your default values and click Save to record them. All values are optional; if a value is left blank then the corresponding value will be blank if the incoming data does not contain that value.



As with the Edit window, there are Basic and Extended tabs into which you may enter data. Click Save to save the data. Click Erase All to delete all default values and return them to their empty state; this changes only the Edit window and not any changes you previously made with the Save button. And click Cancel to exit out of the window without saving any changes.

After saving your defaults you are returned to the “I want to” page of the Data Tools Wizard. You may now select a database for importing. In this example we have chosen the AOKI database and have clicked the Next button.



If you put a checkmark in “Apply default values for missing data”, any defaults you created earlier will be applied when the data is imported. Continue clicking Next to download the desired database.

Appendix

Generic File Import Fields and Data Types

ALL FIELDS MUST BE PRESENT, EVEN IF EMPTY. Empty Text fields must have a pair of double-quotes e.g., "". Fields marked as "Data Required" must have values in them.

Field Nbr	Field Name	Data Type	Size	Notes
1	Frequency	Numbers	Up to 11 digits	In Hertz, in the range supported by SDR# and your radio; zero or numbers. Data Required.
2	Center	Numbers	Up to 11 digits	In Hertz, in the range supported by SDR# and your radio; zero or numbers. Data Required.
3	Call Sign	Text	Up to 20 characters	Letters and numbers
4	Description	Text	Up to 32,767 characters	Letters, numbers, punctuation
5	Protocol	Text	Up to 20 characters	Letters, numbers, punctuation
6	Service	Text	Up to 20 characters	Letters, numbers, punctuation
7	Groups	Text	Zero or more characters	Letters, numbers, punctuation; group names must be separated by a caret character ("^")
8	City	Text	Up to 50 characters	Letters, numbers, punctuation
9	Country	Text	Up to 3 characters	Letters, numbers, punctuation. Use of ITU country codes is recommended for consistency and ease of searching.
10	Language	Text	Up to 20 characters	Letters, numbers, punctuation
11	Latitude	Text	Up to 20 characters	Letters, numbers, minus sign, decimal point
12	Longitude	Text	Up to 20 characters	Letters, numbers, minus sign, decimal point
13	Azimuth	Text	Up to 4 characters	Letters, numbers, minus sign, decimal point
14	Target	Text	Up to 20 characters	Letters, numbers, minus sign, decimal point
15	Days	Text	Up to 20 characters	Letters, numbers, minus sign, decimal point
16	Start Time	Text	4 digits	0000 through 2359
17	Stop Time	Text	4 digits	0000 through 2359
18	Power	Numbers	Up to 7 digits	Zero or numbers only. No separators or wattage indicators.
19	Notes	Text	Up to 32,767 characters	Letters, numbers, punctuation
20	Flagged	Numbers	1 digit	Zero or 1
21	Ignored	Numbers	1 digit	Zero or 1
22	Heard	Numbers	1 digit	Zero or 1
23	Date	Text	0 to 20 characters	Letters, numbers, punctuation. This is normally the last date the station was monitored.
24	Mode	Text	Up to 20 characters	From the options provided by SDR#. Data Required.

Field Nbr	Field Name	Data Type	Size	Notes
25	Shift Enabled	Numbers	1 digit	Zero or 1
26	Shift	Numbers	Digits	In Hertz, in the range supported by SDR#
27	Filter Type	Text	Up to 20 characters	From the options provided by SDR#. Data Required.
28	Filter Bandwidth	Numbers	Digits	In Hertz, in the range supported by SDR#. Data Required.
29	Filter Order	Numbers	Digits	In the range supported by SDR#. Data Required.
30	Squelch Enabled	Numbers	1 digit	Zero or 1
31	Squelch	Numbers	0 to 3 digits	In the range of 0 to 100
32	CW Shift	Numbers	Digits	In Hertz, in the range supported by SDR#. Data Required.
33	Step Size	Numbers	Digits	In Hertz, from the list supported by SDR#. Data Required.
34	Source	Text	Zero or more characters	Name the source of the data.

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.

Error Messages

Problem	Potential Solution(s)
The URL could not be verified; please check it for accuracy.	<p>Before requesting a download, DT tests the URL to make sure it is valid. This message appears when that test fails.</p> <ul style="list-style-type: none"> Obtain the correct URL and type it into the relevant text box; it will be saved for future use if it is correct. If you use a VPN or other privacy enhancer that changes your IP address, you may have to temporarily disable it. That is a requirement of the download provider, not of DT.
An error occurred while attempting to download the data. The error is: <i>followed by the text of the error</i>	An unexpected error was received when attempting to download the internet database. Resolve the error and try again.
An error occurred: The downloaded file was empty.	The download was successful but the file that was downloaded had no content.
No data was downloaded. Check the URL for correctness or try again later.	The website URL was genuine but did not have a file to download.
The downloaded file was empty or could not be converted into data.	The download worked but the resulting file was empty or contained invalid or unexpected data.
Line X has less than N columns.	The generic file being imported has too few columns. This can happen because the file has too few columns overall, or because a character such as

	a carriage return has split a single line into 2 lines. Open the file in a <u>text editor</u> and examine line X to see what the problem is.
Line X has more than N columns.	The generic file being imported has too many columns. This can happen because some field had a delimiter character in it (for example a comma in a name or description) and the line was split into an additional column. Open the file in a text editor and examine line X to see what the problem is. You may need to remove delimiters from inside text fields, or surround text fields with double quotes, in order to get an accurate import.
Line X has an invalid 'Y'; line was skipped due to the error: Z	The generic file being imported has invalid data in line X, column Y. Error message Z explains the problem with the data.
Line X has data that cannot be interpreted in column 'Y' : 'Z'	The generic file being imported has invalid data in line X, column Y. Error message Z explains the problem with the data.
An error occurred while attempting to import the data. The error is: <i>followed by the text of the error</i>	This generic file import error typically occurs because the specified file is in an incompatible format.
An error occurred while attempting to import the data. Some data is in an unexpected format or data is in the wrong column. Check your file and make sure that only text is in text columns, that only numbers are in numeric columns, etc.	The generic file being imported had field formatting errors.
An error occurred: The zip file did not contain the desired file: <i>followed by the name of the expected file</i>	Some database downloads, like HFCC, send a zip file containing one or more data files. The named file did not exist in the zip.
An error occurred while parsing the HFCC files: <i>followed by the text of the error</i>	One or more of the HFCC files could not be read accurately.
The file contains data but it is not in a compatible format. Unable to import.	Generally occurs when an <u>SDR#</u> Frequency Manager database (NOT the Frequency Manager + Scanner database) is not in the expected format.
The data is in an unexpected format. Unable to import.	The file to import is in an unfamiliar format.

Known Issues

None.

Notices

- “SDR Sharp”, “SDR#”, and the SDR# software are Copyright © Youssef TOUIL 2012-2022.
- “FreqMgr”, “Frequency Manager + Scanner”, “Frequency Manager Suite” and software distributed with the Frequency Manager Suite are Copyright © 2013-2022 Jeff Knapp.