



# JS8Spotter

Search Term Traffic Scanner  
And Other Utilities for Use With JS8Call

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## Table of Contents

Overview.....	3
Prerequisites.....	3
<b>Windows users.....</b>	<b>3</b>
<b>Linux Users.....</b>	<b>3</b>
Software Settings.....	4
<b>In JS8Call:.....</b>	<b>4</b>
<b>In JS8Spotter:.....</b>	<b>5</b>
<b>Miscellaneous JS8Spotter Settings:.....</b>	<b>5</b>
QuickStart.....	6
Software Features.....	7
<b>1. Profile-Based Activity Search.....</b>	<b>7</b>
Creating, Editing, or Removing a Profile.....	8
Background Scan.....	8
Search Terms.....	8
Adding and Removing Search Terms.....	8
Importing and Exporting Search Terms.....	9
Activity Matching.....	9
<b>2. Expect Subsystem.....</b>	<b>10</b>
The Expect Window.....	10
Adding an Expect Statement.....	11
Editing an Expect Statements.....	11
Removing an Expect Statement.....	11
Viewing an Expect Entry.....	11
Triggering Expect Responses.....	11
Sending an Expect Response Manually.....	13
Expect Operating Tips.....	13
<b>3. Multiple Choice / Micro Forms.....</b>	<b>14</b>
Creating Form Templates.....	14
Filling Out and Posting Forms.....	16
Transmitting a Form Over the Air.....	17
Form Responses & Gateway.....	17
MCForms Response Gateway.....	18
MCForms Datecode.....	18
<b>4. Additional Features.....</b>	<b>19</b>
APRS Commands.....	19
Simple Offline Maps.....	19
Visualize Waterfall.....	20
Getting Additional Help.....	20

## Overview

*JS8Spotter* is an API (application programming interface) based companion application for JS8Call. It communicates with your running JS8Call instance over TCP (transmission control protocol; on your local machine or optionally over a network). *JS8Spotter* is not a standalone application. It requires a running instance of JS8Call to operate.

*JS8Spotter* provides several useful features in a single Python file (with supporting theme, form, and image files). Information gathered by *JS8Spotter* is stored in an SQLite3 database, and can be accessed through freely available third-party software.

At its base *JS8Spotter* **provides a way to apply automatic keyword searches to incoming JS8Call traffic, so that operators can more easily store and track traffic that interests them.** This is the primary function of *JS8Spotter*. Additional features include expanded auto-responders, micro forms, APRS commands, as well as map and waterfall visualizations.

## Prerequisites

In order to use *JS8Spotter*, you must have a fully functional JS8Call setup. If you're unfamiliar with JS8Call, you will need to start there first. There are **no** radio, sound card, or other hardware configuration requirements related to *JS8Spotter*; all of those concerns are handled in JS8Call.

It is highly recommended that operators looking to use *JS8Spotter* be very comfortable with JS8Call. Learning JS8Call first will help operators understand the need for and value of *JS8Spotter*. Configuration issues having to do with the operation of JS8Call itself are outside the scope of this document.

## Windows users

If you're using the binary build, everything should be setup for you to run the program using the following instructions. If you're using the source, you may need to scan through the Linux Users section below to get hints about configuring Python3 and the libraries.

Download the latest Windows build from <https://kf7mix.com/js8spotter.html> and save the .ZIP file where you would like to unpack it. Locate the file in File Explorer, right-click and Extract All. A new folder should be created for *JS8Spotter*. Enter the folder and double-click the application icon to start the program.

## Linux Users

You will require a functional Python3 configuration with Tkinter and Pillow ImageTk libraries installed. On most distros, this is a simple matter of installing the needed packages using pip or your package manager (apt, etc.). On a default Linux Mint 21.1 installation (where Python3 is included), for example, the following command will suffice to setup your environment:

```
"sudo apt install python3-tk python3-pil python3-pil.imagetk"
```

## Software Settings

Once you have a functional JS8Call setup and Python3 environment, you'll need to verify that your settings are correct so that your JS8Call API is accessible in *JS8Spotter*. Sane default settings are included, but it is up to you to make sure that everything is set and matching in both applications.

### In JS8Call:

- In JS8Call, load the settings by pressing "F2", or by using the "File>Settings" menu item
- Visit the "Reporting" tab
- Make sure the "Allow setting station information..." check box is enabled
- Make sure the "Enable TCP Server API" check box is enabled
- Make sure the "Accept TCP Requests" check box is enabled
- Take note of the "TCP Server Hostname" and "TCP Server Port" values

The screenshot shows the 'Reporting' tab of the JS8Spotter settings window. The window has a dark theme and a tabbed interface at the top with the following tabs: General, Radio, Audio, Reporting (selected), Frequencies, Saved Messages, Notifications, and UI.

**Logging**

Operator Callsign (if different than Station Callsign):

**Network Services**

- ☒ Enable spotting to reporting networks (JS8NET, PSKReporter, etc)
- ☒ Enable spotting @APRSIS messages to the APRS-IS network

APRS Server:

APRS Server Port:

Never send spotting reports from these callsigns (comma separated):

**API**

- ☒ Allow setting station information (Grid, Info, Status, etc) from the APIs

UDP Server Hostname:  ☒ Enable UDP Server API

UDP Server Port:  ☒ Accept UDP Requests

TCP Server Hostname:  ☒ Enable TCP Server API

TCP Server Port:  ☒ Accept TCP Requests

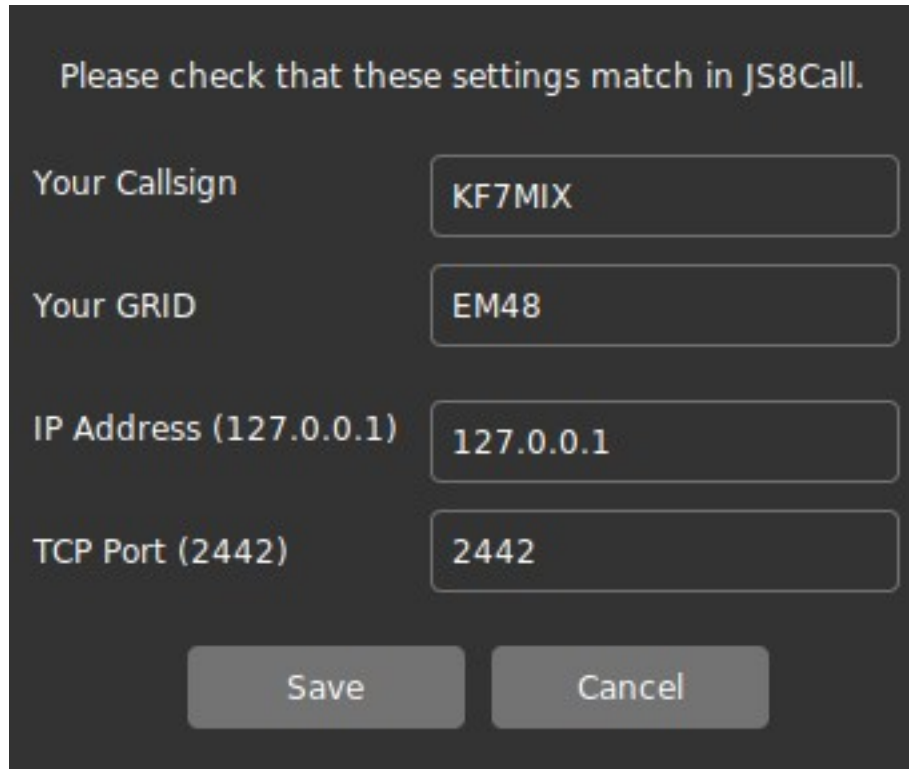
TCP Max Connections:

**N3FJP Logger**

At the bottom right, there are two buttons: 'Cancel' (with a red X icon) and 'OK' (with a blue checkmark icon).

## In JS8Spotter:

- Ideally, make sure JS8Call is running before running *JS8Spotter*
- In *JS8Spotter*, load the settings by using the "File>Settings" menu item
- Enter your Callsign and GRID (4 character)
- Ensure that the "IP Address" and "TCP Port" in *JS8Spotter* match the settings in JS8Call

A screenshot of a settings dialog box for JS8Spotter. The dialog has a dark background with light-colored text. At the top, it says "Please check that these settings match in JS8Call." Below this are four input fields: "Your Callsign" with the value "KF7MIX", "Your GRID" with the value "EM48", "IP Address (127.0.0.1)" with the value "127.0.0.1", and "TCP Port (2442)" with the value "2442". At the bottom are two buttons: "Save" and "Cancel".

Please check that these settings match in JS8Call.

Your Callsign: KF7MIX

Your GRID: EM48

IP Address (127.0.0.1): 127.0.0.1

TCP Port (2442): 2442

Save Cancel

## Miscellaneous JS8Spotter Settings:

The following optional settings in *JS8Spotter* will help you control how you wish to view and operate the software.

- The "View>Hide Heartbeats" menu item will let you hide heartbeat traffic from the "Matched Activity" pane on the right-hand side of the main application window, which may reduce clutter
- The "View>Hide RX.SPOT" menu item will let you hide SPOT traffic type items from the "Matched Activity" pane on the right-hand side of the main application window, which may reduce clutter
- The "View>Dark Theme" menu item will let you toggle between a light and dark software theme

## QuickStart

This section is primarily for those that prefer hands-on learning. Each of the primary features of *JS8Spotter* are described in very high-level detail below. There is enough here to get you started. For additional information, see each of the corresponding sections in this manual.

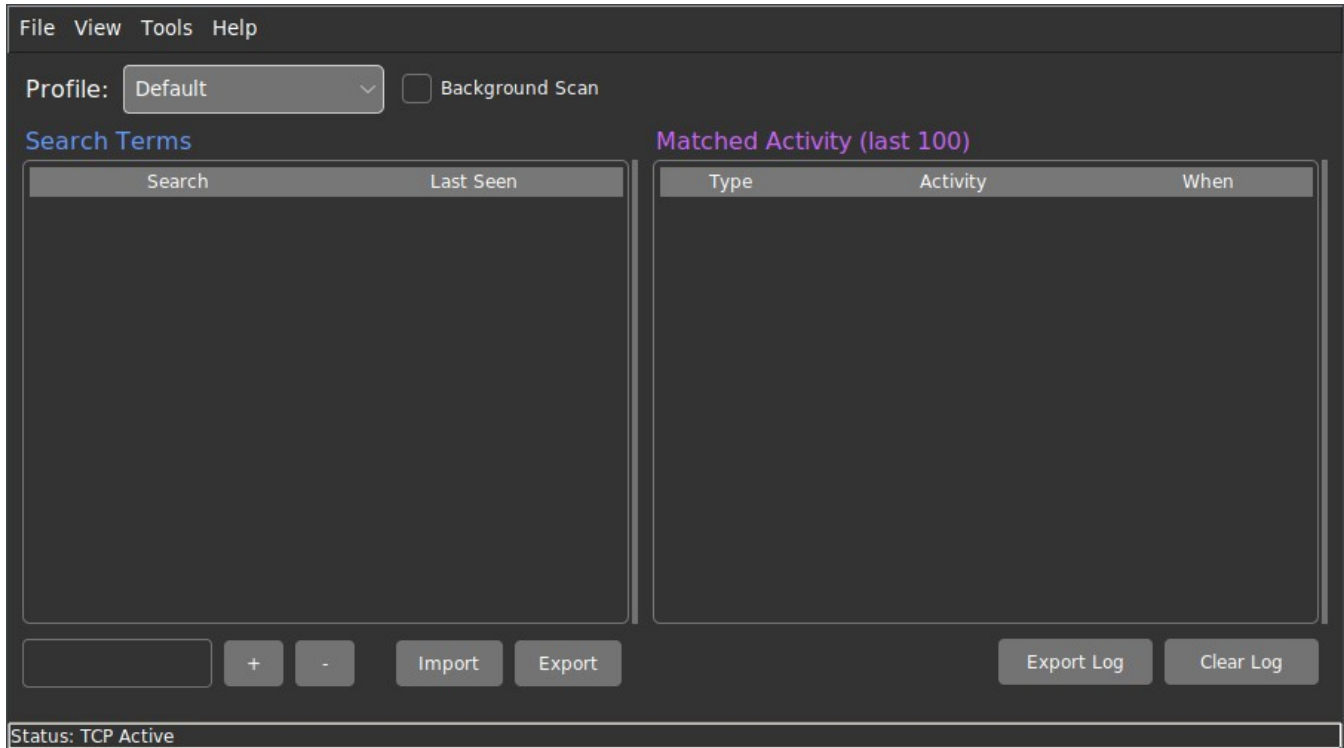
- **Profile-Based Activity Search:** Primary function of *JS8Spotter*. Create profiles (i.e. "Contacts", "Chess", "Weather"). Enable "Background Scan" and they'll scan even when not open. In each profile, create search terms to scan for (i.e "KF7MIX", "HURRICANE"). The same search terms may appear in multiple profiles. As traffic comes in through the JS8Call API, *JS8Spotter* will look for matches and save matched traffic in the database.
- **Expect Subsystem:** This is a user-defined auto-responder. Your station will "expect" some text, and "respond" with text you provide. It will only "reply" to stations you allow, and it will only auto-reply the number of times you permit.
- **MCForms:** Micro Forms aka Multiple Choice Forms. Look in the forms folder for example forms. Create your own forms if desired, and publish them on kf7mix.com or on your own site. Fill in forms and post them to the Expect Subsystem. Your station will automatically retrieve forms seen on the air and store them.
- **APRS Commands:** *JS8Spotter* includes shortcuts for sending APRS commands through JS8Call. Simply fill in the boxes and send.
- **Simple Offline Maps:** Maps show the approximate location of stations that are reporting their GRID. Helps with understanding propagation. North America and Europe are included, but you may create your own maps for anywhere in the world.
- **Visualize Waterfall:** A static visualization of the JS8Call waterfall with signal location and size represented for a period of time from 5min to 24hrs. A good way to see which parts of the waterfall are not as widely used.

# Software Features

Each of *JS8Spotter*'s four main features are covered in detail below.

## 1. Profile-Based Activity Search

This is the main function of *JS8Spotter*. When you first open the application, the main window display has two panes: On the left, the "Search Terms" pane; and on the right, the "Matched Activity" pane.



You may wish to create multiple profiles, to organize the search terms and traffic you wish to track. For example, if you wish to track your contacts/friends as well as weather events, you might have profiles and search terms like these fictional ones:

<b>Profile:</b> Contacts	<b>Profile:</b> Weather
<b>Search Terms:</b> KF7MIX ABC1DE @JS8CHESS JOHN SMITH	<b>Search Terms:</b> WX HURRICANE STORM TRACK FLOOD WATCH

Users may create as many profiles and search terms as they like. The same search terms may appear in multiple profiles, at the user's discretion.

## Creating, Editing, or Removing a Profile

To create a profile, you simply use the "File>New Profile" menu item. Enter the name of your profile in the box, and create it. To edit a profile name, use the "File>Edit Profile" menu item, edit the name and save it.

To remove a profile, first make sure you have that profile selected by using the "File>Switch Profile" menu item, or by using the select box in the main window. Next, use the "File>Remove Profile" menu item.

Removing a profile will remove all the associated search terms and traffic.

## Background Scan

In the main window, next to the profile select box, is a check box for "Background Scan".

- When this box is ☐ **unchecked**, search terms in this profile will only be scanned when this profile is actively selected and displayed in the main window
- When this box is ☒ **checked**, search terms in this profile will be scanned in the background, even if you are currently viewing a different profile.

## Search Terms

Search terms may be single or multiple words, using any standard ASCII characters you wish to use. All search terms will be converted to capital letters.

Search terms are matched exactly only. If you wish to match narrowly, use exact terms such as a call sign or a full word (i.e. "KF7MIX", "THUNDER STORM", "YELLOW CARS"). If you wish to match broadly, use partial terms (i.e. "KF7", "STORM", "CAR").

Use multiple variations of search terms and/or search concepts if needed (i.e. "WX", "WEATHER")

## Adding and Removing Search Terms

There are two ways to add search terms to a profile. Make sure the correct profile is selected, then do one of the following:

1. Enter a search term into the box below the left "Search Terms" pane. Press <Enter> or click "+" to add the search term to your list.
2. Click the "Import" button beneath the left "Search Terms" pane. In the space provided, type or paste your search terms, one search term per line, then click "Add Batch".

To remove search terms from a profile, use one of the two following methods. You will be prompted before the search terms are removed:

1. Highlight the search term and click the "-" button beneath the left "Search Terms" pane.
2. Use <Shift> and/or <Ctrl> to click and highlight multiple search terms, then click the "-" button beneath the left "Search Terms" pane.



## Importing and Exporting Search Terms

Importing is equivalent to adding, but remember that what you import may be typed or provided from another source. For example, if multiple users of a group wish to have a profile that uses the same terms (i.e. a JS8Chess group, an emcomm group, or a Skywarn group), they could share those search terms via email or a text file on a thumb drive. Each user could "Import" the same set of data into *JS8Spotter*.

To export search terms, select the profile you wish to export from, and click the "Export" button beneath the left "Search Terms" pane in the main window. You may copy or save the search terms for later use.

The Search Terms Import and Export features both operate with blocks of text, with one search term per line.

## Activity Matching

The right "Matched Activity" pane in the main shows the latest 100 matches for the selected profile's search terms. Additional matched activity is stored in the database. As traffic comes in to JS8Call, it is provided to *JS8Spotter* through the API over TCP. *JS8Spotter* examines the incoming traffic and attempts to match on search terms in the active profile and in any profiles that have Background Scan enabled. When a match is found, the activity is saved in the database.

To view details on matched activity, double-click an entry in the "Matched Activity" pane. Right-click on a highlighted entry to copy the report contents to your copy/paste buffer.

If you wish to see additional saved activity, locate the associated search term in the left "Search Terms" pane, and double-click it. This will bring up all matched activity for that search term in the selected profile. Double-clicking or right-clicking entries in this view will bring up activity reports or copy them to your copy/paste buffer respectively.

Traffic need not be directed at your station to be recorded. *JS8Spotter* will keep track of any traffic containing the search terms you provide.

As times, JS8Call provides the same traffic to the API multiple times and/or in multiple ways. This may result in duplicate matches in *JS8Spotter*.

## 2. Expect Subsystem

The "Expect" subsystem provides a method of expanding JS8Call's user-configurable auto-response ability. The built-in user field commands in JS8Call are as follows:

- **"INFO?"** - This provides station information that you've saved in JS8Call's settings. People usually use this line for rig info, but it may be used for anything.
- **"STATUS?"** - This provides status information that you've saved in JS8Call's settings. People sometimes use this to relay idle time or JS8Call program version information.
- **"GRID?"** - This provides your grid as saved in the JS8Call settings.

As all JS8Call users should be aware, if you send any one of these commands in the blind to any other station with autoreply enabled, that station will immediately respond with the stored text. Expect works the same way, but with more flexibility.

With Expect, you can create your own commands and responses (collectively called "statements"), and control the Callsigns and/or groups that are allowed to trigger them. You also have a log of when they were accessed, and the ability to disable them after a fixed number of transmissions.

**All Expect statements are triggered using the "E? " prefix.** See "Triggering an Expect Response" below.

You should be aware that Expect does not include any statements by default. This means that other stations have no way of knowing that you are running Expect, or what commands are available, unless you choose to expose that information using an Expect statement. Expect relies on operators working together in groups in order to make the feature useful.

### The Expect Window

The Expect window provides the interface to add, edit, remove, and view Expect entries.

Expect	Response	Allowed Calls/Groups	Sent To	Count	Created
FI100	FI100 6233532136 OP JOE #CNMD	*		0/99	2023-03-14
CMDS	AVAIL CMDS: WX, TST, MCF	*		0/99	2023-03-14
WX	CLOUDY 55F	*,@SKYWARN		0/20	2023-03-14
MOVE22	NBXD2	@JS8CHESS		0/10	2023-03-14
TST	TEST	*		0/99	2023-03-14

Text to Expect (6): 
Text to Respond With: 
Allowed Callsigns/Groups: 
Max Replies:

## Adding an Expect Statement

To add an Expect entry, open the Expect system and fill in the fields at the bottom of the window:

- **"Text to Expect"** – A single word of 6 characters or less. Allowed characters are A-Z, 0-9, and "!" No spaces. Do not include the "E? " prefix here, it is always assumed
- **"Text to Respond With"** – Anything you want sent over the air when an allowed station or group sends the "Text to Expect"
- **"Allowed Callsigns/Groups"** – This is the list of callsigns or groups that are allowed to trigger this response. It can be the "\*" character for anyone, or a list of comma-separated specific callsigns and/or groups. (i.e. "\*" or "\*,@JS8CHESS" or "KF7MIX" or "KF7MIX,AB1CD,EF2GH" or "KF7MIX,@SKYWARN")
- **"Max Replies"** – The number of times your station is allowed to auto-respond for this expect

## Editing an Expect Statements

To edit an Expect statement, highlight the row and right-click. This will load the variables into the fields at the bottom of the window. Make your changes and hit the "Save" button. Or, if you change your mind, hit the "Cancel" button.

## Removing an Expect Statement

To remove an Expect statement, highlight the row and hit the <Delete> key on your keyboard. You will be prompted to verify that you want to remove the row.

## Viewing an Expect Entry

To view information about an expect entry, including a report on the Callsigns and groups it has been transmitted to, highlight the row and double-click. You may highlight text and use the <Ctrl+c> key combination if you wish to copy text from this screen.

## Triggering Expect Responses

For Expect to work, the following needs to happen:

- Multiple operators **must coordinate**, so they know how to trigger responses. To respect the privacy of operators there is no mechanism that automatically reveals what statements are available, it is up to operators to create those. **Conventions may be adopted**, and some are recommended in the tips section below
- All participating stations must **DISABLE/UNCHECK** the "Allow sending standard messages without callsign" option in JS8Call settings "General>Behavior" tab. All stations using Expect need to transmit their call sign in order for Expect to work
- Expect statements are triggered with the "E? " prefix. Note the space. The format is: "E? <Space><Expect Text>"

As an example, say that my station, KF7MIX, is within range (verified with "SNR?"), and has stored the following Expect statement data:

<b>Expect:</b>	<b>Respond:</b>	<b>Allowed:</b>	<b>Max:</b>
CMDS	WX, RIG, ANT, MCF	*	99

To trigger a response to this Expect statement, a station would have to send the following text directed to my station, such as in:

"KF7MIX: E? CMDS"

If station AB1CD sent the above command, it would be received as "AB1CD: KF7MIX E? CMDS", and my station would automatically reply with "KF7MIX: AB1CD WX, RIG, ANT, MCF"

As another example, say that the station AB1CD is within range and has stored the following Expect statement data:

<b>Expect:</b>	<b>Respond:</b>	<b>Allowed:</b>	<b>Max:</b>
WX	75F SUNNY	*,@SKYWARN	99

Imagine also that both AB1CD and myself, KF7MIX, participate in the @SKYWARN group. If I send:

"@SKYWARN E? WX"

Then AB1CD (and any other @SKYWARN participants in range) would receive "KF7MIX: @SKYWARN E? WX" and their station (or multiple stations at once, if others are also setup) would automatically respond with "AB1CD: @SKYWARN 75F SUNNY"

As one final example, imagine three fictional friends: EF2GH, IJ3KL, and MN4OP. They like checking in on one another, and they each store a "STAT" statement with a response just for their friends. Below would be the Expect statement data that EF2GH has stored:

<b>Expect:</b>	<b>Respond:</b>	<b>Allowed:</b>	<b>Max:</b>
STAT	ALL CLEAR	IJ3KL,MN4OP	99

If station IJ3KL sent "IJ3KL: EF2GH E? STAT", then the response would come back as "EF2GH: IJ3KL ALL CLEAR". Likewise, MN4OP could trigger the response. But if AB1CD saw them communicating, and one day tried "AB1CD: IJ3KL E? STAT", there would be no response, as his station is not in the allowed list.

## **Sending an Expect Response Manually**

You can send Expect responses manually by first right-clicking a row to load it, then clicking the "Send Now" button at the bottom of the Expect window. You will be presented with a field for filling in the target station or group (which do not have to be in the allowed list if you're sending manually), and an optional check box for sending the response as a MSG (which will prompt an ACK from the receiving station.)

Manual Expect responses are primarily intended for transmitting filled out MCForms, which will be covered later. However, you may transmit any Expect response manually, at any time.

## **Expect Operating Tips**

To maintain flexibility and honor varying perspectives on privacy, Expect only does what you tell it to do. It does not expose new universal remotely-activated commands. It will not reveal a list of available commands unless you set that up manually. For this reason, it is valuable to keep some potential practices in mind:

- Expect is primarily intended for groups of operators. These groups should operate off a common set of procedures, such as a published SOP. At the very least, these groups should agree on how to configure their Expect systems so that they know what commands to send to trigger responses.
- It is good practice and highly recommended to setup a "CMDS" Expect statement. This statement should be accessible to "\*" and should respond with a list of Expect commands that you want the general public to be aware of. It could be short or long, and it doesn't have to list all of your commands, just the public ones. Examples of "public" commands might include:
  - WX – store and report your daily weather
  - RIG – store information about your rig here, and use "INFO?" to direct them to "E? CMDS"
  - ANT – store information on your antenna system specifically, instead of cramming it into "INFO?"
  - URL – store a website URL that other operators can visit
  - GRP – store a list of groups you participate in
  - MCF – store a list of any forms you have available for retrieval
- You may include the text "MSG " at the beginning of your responses, if you want to transmit those responses as JS8Call messages. This will prompt an ACK from the receiving station
- You may send E? requests through a relay, but response is delayed for 120seconds to allow for the JS8Call built-in ACK replies and other multiple communications associated with a relay. Simply wait for the station to send the E? response after all the JS8Call chatter is completed

### 3. Multiple Choice / Micro Forms

JS8Call is a slow mode, tailored specifically to weak signals. Normal forms, as seen in programs such as Winlink and Flmsg, are open format, freeform input intensive, and large (by JS8 standards.) The MCForms (which stands for both Micro Forms and Multiple Choice Forms) features of *JS8Spotter* bring forms to JS8Call in a way that is respectful of the mode and of the operators using the mode. MCForms aims to:

- Allow operators to craft complex multiple-choice forms that convey a great deal of information
- Limit transmitted characters by modeling forms around choices rather than freeform information
- Provide for additional freeform information in comments and additional transmissions
- Model possibilities through included forms
- Provide a resource for publicly publishing forms, so that transmission meaning is never obscure
- Include an internet gateway architecture for groups who want to submit gathered forms to a central location

#### Creating Form Templates

The raw format for MCForms templates is designed to be quickly human readable. With a simple template format, you can spend more time crafting your forms to efficiently convey information, rather than worrying about the technical aspects of the template file.

MCForms Template Format Requirements	
<b>First Line</b>	<p>The first line of the form text file <b>must</b> contain:</p> <p>&lt;Title text&gt;&lt;Pipe&gt;&lt;Form ID&gt; (i.e. "Test Form F!000)</p> <ul style="list-style-type: none"> <li>• The &lt;Title text&gt; may be anything but should be short and to the point</li> <li>• &lt;Pipe&gt; is simply the   character, also called "vertical line" or "vertical bar"</li> <li>• &lt;Form ID&gt; must be the letters "F!" followed by three characters (see tips)</li> </ul>
<b>Question Lines</b>	<p>Questions are <b>opened</b> by a line in this format:</p> <p>&lt;Questionmark&gt;&lt;Space&gt;&lt;Text&gt; (i.e. "? What is your favorite color?")</p> <ul style="list-style-type: none"> <li>• Start the line with a question mark and space, which won't be displayed</li> <li>• A Question Line must open a question before Answer Lines start</li> <li>• Question Lines <b>do not</b> need to <b>end</b> with a "?". The &lt;Text&gt; may be anything you choose. Often, a ":" is more appropriate.</li> </ul>
<b>Answer Lines</b>	<p>Answers are <b>added to an open question</b> in this format:</p> <p>&lt;At Symbol&gt;&lt;Character&gt;&lt;Space&gt;&lt;Text&gt; (i.e. "@1 Red" or "@R Red")</p> <ul style="list-style-type: none"> <li>• The answer &lt;Character&gt; you choose can be a number or letter</li> </ul>

	<ul style="list-style-type: none"> <li>You don't have to have any special order to your answer &lt;Character&gt;</li> <li>The &lt;Character&gt;s will be transmitted over the air</li> <li>The &lt;Text&gt; can be anything you choose</li> <li>All Answer Lines will be associated with the required Question Line that preceded them</li> </ul>
<b>Comments</b>	Any line beginning with "#" will be ignored as a comment. <b>The first line of the text file must not be a comment.</b>

Creating multiple choice forms requires flexible thinking. Many forms that would otherwise require the operator to type out a response (and that would also require the operator to be trained in how to properly respond without being verbose) may be broken down into one or more multiple choice answers that require less dependence on operator training by creating response boundaries. Take this theoretical example:

<p><b>Standard Form Question:</b></p> <p>1. Status of utilities at your QTH:</p> <p><b>Freeform Answer TXed:</b></p> <p>1. "My power is on, but my gas is shut off. We've got city water, but it's only working part of the day. The internet is down but my cell phone is working some of the time, I can text and that's about it. There are radio and TV stations working too, I think they're all up." (269 characters)</p>	<p><b>MCForms Questions (see form F!301):</b></p> <ol style="list-style-type: none"> <li>Operator reporting for:</li> <li>Phone landlines functioning?</li> <li>Cell phone functioning?</li> <li>Local AM/FM/TV stations broadcasting?</li> <li>Internet functioning?</li> <li>Public water works functioning?</li> <li>Commercial power functioning?</li> <li>Natural gas supply functioning?</li> <li>NOAA Weather Radio functioning?</li> </ol> <p><b>MCForms Answers TXed:</b></p> <p>F!301 <i>143132111</i> #ABCD (21 characters; to decode the italic responses to questions 1-9, see the image in the next section, or view form F!300 in the forms folder of the software)</p>
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The above example doesn't show the answers available to the operator, but you can see them in form F!301 included with *JS8Spotter*. You can never replace every free form question with multiple choice questions. However, it is possible to convey a great deal of information cleanly and uniformly by breaking questions up.

## Filling Out and Posting Forms

In the *JS8Spotter* main window, using the "Tools>MCForms – Forms" menu item, you may access a list of all the forms that are located in the "forms" subfolder in your *JS8Spotter* installation directory. A series of forms have been included by default. You may add to these by creating new text files for the appropriate format, in this folder.

By selecting a form from the sub-menu of "Tools>MCForms – Forms", you will be presented with a window like this one:

**F!301 -- Field Situation Report**

Operator reporting for:	1 Reporting conditions for self in QTH location
Phone landlines functioning?	4 Unknown
Cell phone functioning?	3 Partially functional, texts only
Local AM/FM/TV stations broadcasting?	1 Yes, fully functional
Internet functioning?	3 No
Public water works functioning?	2 Partially functional
Commercial power functioning?	1 Yes, fully functional
Natural gas supply functioning?	1 Yes, fully functional
NOAA Weather Radio functioning?	1 Yes, fully functional

Form Comment:

Post Form to Expect    Load Posted Expect Form

To fill out the form, select the best answer to each of the questions presented. Add a comment at the bottom as needed, keeping it as brief as possible.

To post a form, click "Post Form to Expect". If you have previously posted this same Form ID, it will be overwritten (you will be notified of this fact each time you post).

You may load a previously posted form from the Expect subsystem by clicking "Load Posted Expect Form." This will allow you to edit your answers.

If you wish to remove a posted form, simply delete the Expect statement.



## Transmitting a Form Over the Air

Because forms are posted to the Expect subsystem, they will be automatically transmitted when a request comes from another station. The format for transmitting forms over the air can be easily viewed after posting a form to Expect. To transmit a form, the information must be in this format:

F!<three characters><space><form response><comment and or space(s)><datecode>

The transmission may be preceded by "MSG" if desired, and this is recommended if you are unsure of propagation or want a receipt in the form of JS8Call's ACK. *JS8Spotter* will not normally add "MSG" unless you send a form manually and select this option.

If you wish to transmit a form manually and immediately, you may do so by posting the form to Expect, then visiting Expect, loading the form into the edit fields, and using the "Send Now" button.

The <datecode> will be explained later in this section.

## Form Responses

*JS8Spotter* will gather all forms that it sees transmitted over the air. These responses are available by using the "Forms>MCForms – Responses" menu item in the main window.

View Form Responses:
View All Form Types
All Time

From	To	Form #	Form Responses	Message	Timestamp	GW	Received
KE0DHO	KF7MIX	F!100	6224431139	TEST	#BORB	✓	2023-03-12 18:35
KE0DHO	KF7MIX	F!103	Y533		#CHOA	✓	2023-03-12 01:18
KE0DHO	KF7MIX	F!103	Y533		#CHOA	✓	2023-03-12 01:12
KF7MIX	KE0DHO	F!100	7233532137	OP JOEY	#BKLC	✓	2023-03-10 14:58
KF7MIX	KE0DHO	F!100	7233532137	OP JOEY	#BKLC	✓	2023-03-10 14:51
KE0DHO	KF7MIX	F!103	Y533		#CHOA	✓	2023-03-09 22:54
KF7MIX	KE0DHO	F!103	N153		#CHKD	✓	2023-03-09 14:16
KE0DHO	KF7MIX	F!103	Y533		#CHOA	✓	2023-03-09 13:37
NOGES	KE0DHO	F!102	551321		#CGQD	✓	2023-03-08 22:37
KE0DHO	KF7MIX	F!103	Y533		#CHOA	✓	2023-03-08 22:34
KE0DHO	KF7MIX	F!103	Y533		#CHOA	✓	2023-03-08 22:33
NOGES	KE0DHO	F!301	111111111		#CHLC	✓	2023-03-08 22:28
KE0DHO	KF7MIX	F!103	Y533		#CHOA	✓	2023-03-08 21:55
KE0DHO	@ERC	F!103	Y533		#CHOA	✓	2023-03-08 21:05
KE0DHO	KF7MIX	F!103	Y533		#CHOA	✓	2023-03-08 21:03

Export All
Gateway:
Save

In the Responses window, you may:

- Filter by Form ID and/or time received
- View information at a glance, including whether the form was submitted to a Gateway ("GW")
- Use the "Export All" button to save responses in a spreadsheet-type format
- Double-click a response to view/save a formatted human-readable version
- Highlight a response and hit "Delete" to remove it

## Response Gateway

In this context, the Gateway is a user-provided web-based application which receives specific HTTP/HTTPS requests and processes the included data, storing and/or performing other functions with that data. A very basic sample gateway is available for testing (with source) on [kf7mix.com](https://kf7mix.com).

The Gateway is an optional feature intended for groups of operators who wish to leverage the internet to increase the speed at which the group may communicate forms, or integrate with other systems.

In the Response window you have the option of setting a Gateway URL or leaving the field blank. If you provide a properly formatted URL, forms received by *JS8Spotter* will be submitted to that URL. For example:

**Sample/Test Gateway URL:** [https://kf7mix.com/mcfgateway\\_submit.php](https://kf7mix.com/mcfgateway_submit.php)

**Example Posted Request:**

```
https://kf7mix.com/mcfgateway_submit.php?
fromcall=AB1CD&toall=KF7MIX&typeid=F!
301&responses=143132111&msgtxt=HELLO&timesig=#CJIB
```

Groups may choose to keep their Gateway URL private, and include additional key/value pairs in the Gateway setting (by adding "?name=value" to the Gateway URL) to provide basic authentication. For example:

**Fictional Gateway URL with added key/value pair:**

[https://ab1cd.com/spotter\\_gateway.php?operatorcode=719015221](https://ab1cd.com/spotter_gateway.php?operatorcode=719015221)

**Example Posted Request:**

```
https://ab1cd.com/spotter_gateway.php?
operatorcode=719015221&fromcall=AB1CD&toall=KF7MIX&typeid=F!
301&responses=143132111&msgtxt=HELLO&timesig=#CJIB
```

## MCForms Datecode

The datecode at the end of an MCForm transmission provides an approximate low-resolution timestamp in a human-readable format with as few characters as possible over the air. It starts with "#" and the 4 characters following are interpreted as:

First Character	Month, represented as a single letter: A-L = 1-12
Second Character	Day, represented as a single letter or number: A-Z = 1-26, 0-4 = 27-31
Third Character	Hour, represented as a single letter: A-W = 0-23
Fourth Character	Minute, represented as a single letter, 2min resolution: A-Z, 0-3 (A=0, B=2, C=4, etc.)

## 4. Additional Features

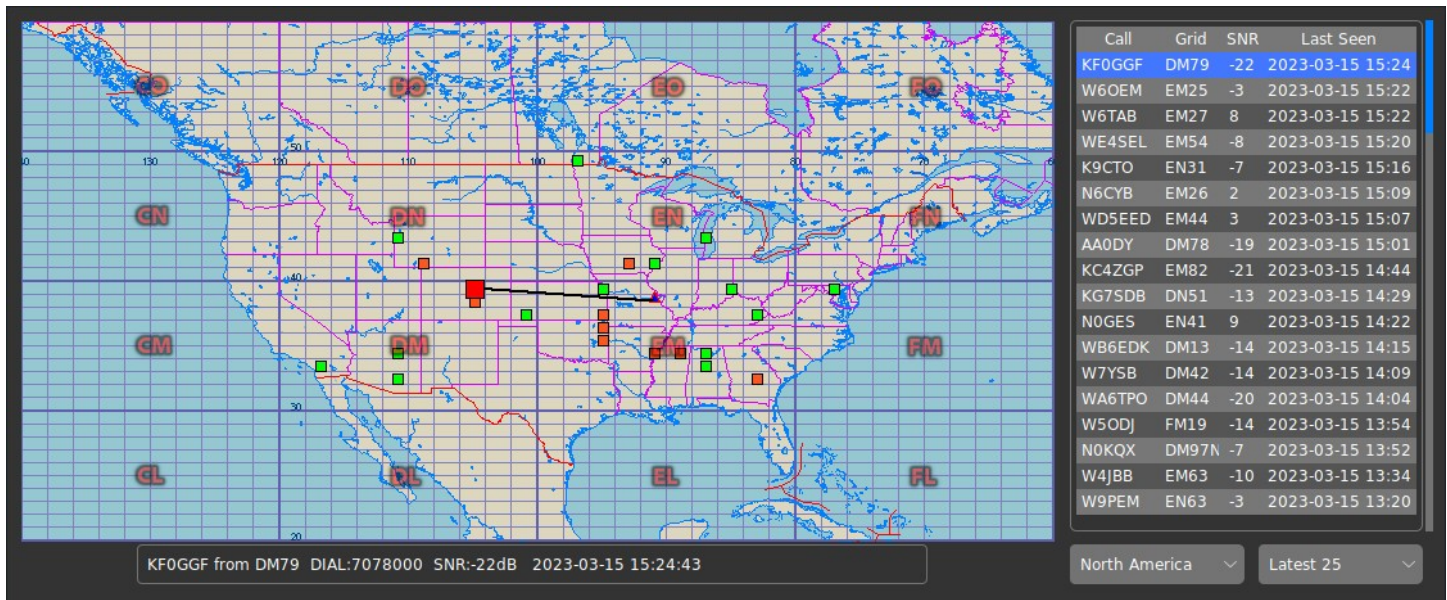
### APRS Commands

JS8Call supports APRS-IS integration natively. APRS commands transmitted in the proper format may be received by JS8Call stations and forwarded through the internet to the APRS system. JS8Call and *JS8Spotter* provide mechanisms for SMS text messages, emails, and grid reports.

*JS8Spotter* makes entering APRS commands easier by providing simple fields to fill out. These are found in the "Tools" menu of the main window. You may use these to generate the APRS statements, which may be copied or transmitted directly.

### Simple Offline Maps

JS8Call transmits maidenhead grid coordinates regularly with a variety of transmission types. Because these grids are readily available and already included in other transmissions, it makes sense to provide a way to visualize them. Visualizing stations that you can hear can help you understand current propagation.

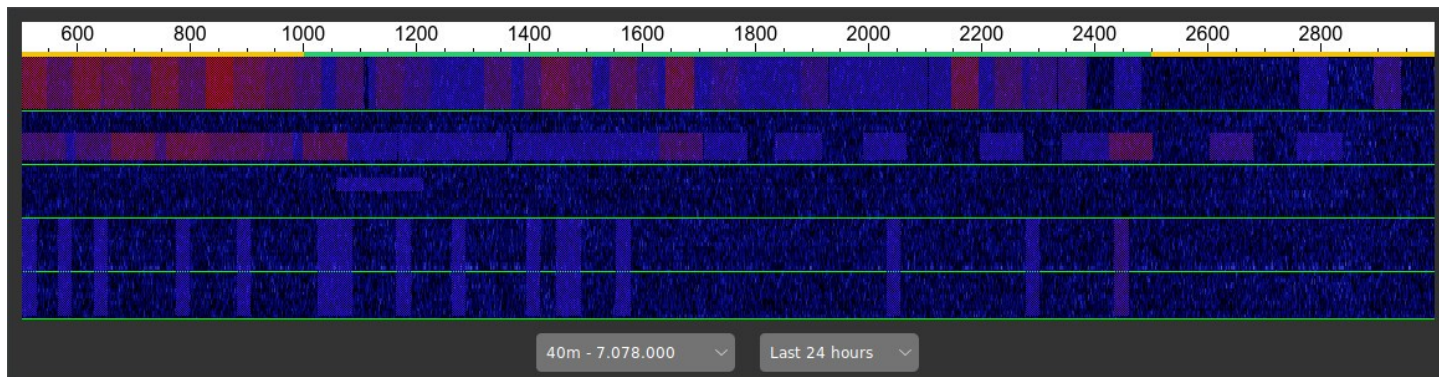


The map feature is located in the "Forms" menu of the main window.

- Maps for North America and Europe are included, you may add additional maps in the code
- You may filter results by age, the latest 100 are viewed by default
- Make sure your own grid location is set in the settings, as described in this manual
- Double-click a line to view details on that line
- Select a line and right-click or hit <Delete> to remove an item
- Only the most recent grid report of any given callsign will be shown
- Locations are very approximate (4-letter grid)

## Visualize Waterfall

For operators who like to leave their station running unattended, it can be difficult to select a portion of the waterfall that isn't busy. This feature will help you visualize JS8Call traffic over time on a simulated static waterfall.



Select the band and time-frame desired.

- Only bands you're actively using in JS8Call will gather data for this visualization
- The most recent signals are red, the oldest signals are blue
- Signals are separated by speed: normal at the top, fast next, turbo, then slow at the bottom
- The heartbeat portions of the band will always be the busiest

## Getting Additional Help

Additional help, insights, and training videos are available online:

<https://kf7mix.com/js8spotter.html>