

JS8Reporter – User Manual

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A project of SitRepNet - SitRepNet.com

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1. OVERVIEW

JS8Reporter is a Situational Awareness program, and a companion program to JS8Spotter. It reads MCF505 Area Assessment form data received via JS8Call / JS8Spotter and displays that data on an offline map of North America, and in filtered and tabulated reports, allowing emergency managers, radio operators, and others to visualize the operational status of infrastructure across a wide area. Area Assessments are produced by a decentralized network of individual radio operators, making it free of media or institutional bias for a very realistic assessment of conditions around the country.

JS8Reporter operates entirely offline at runtime. No internet connection is required once the program and its map data are installed. JS8Reporter can be used as a stand-alone program when provided with files exported directly from JS8Spotter; this gives emergency management professionals a powerful tool when supported by a local amateur radio operator.

JS8Reporter is a project of SitRepNet.

Key capabilities:

- Displays color-coded map pins showing infrastructure condition at each reporting station's grid square location
- Tabulated summary and detail views of all received assessments
- Date filtering to focus on a specific time window

- Circle filter to focus on a geographic area
- Time Lapse playback to visualize how conditions change over time
- ALERT detection with prominent notification
- Twelve analytical report types exportable to text files
- Export of map images and tabular data

MCF505 Form: <https://sitrepnet.com/mcforms/MCF505.txt>

More Information: <https://sitrepnet.com/js8reporter/>

2. REQUIREMENTS AND INSTALLATION

Supported Platforms

- Raspberry Pi 4B running Raspberry Pi OS Bullseye (primary platform)
- Linux (Ubuntu, Debian, and derivatives)
- macOS
- Windows 10 / 11

Python Version

- Python 3.9 or newer is required.

First-Time Setup

- An internet connection is required for the one-time setup only. After setup the program runs fully offline.

1. Download the install ZIP file into your Home directory, and unzip it.

https://sitrepnet.com/js8reporter-download/JS8Reporter_vN.N.N.zip (where N.N.N is the current version number of JS8Reporter). The ZIP file contains the following files:

- js8reporter.py
- setup.py
- run.sh
- run.bat
- JS8Reporter-UserManual_vN.N.N.pdf (where N.N.N is the current version number)

★ If installing on a Windows system, your Home directory is C:\Users\username

We recommend that you confirm the authenticity of the file by downloading the signature file (same name as the install file, but with a .sig extension) using the PGP Public Key:

KN4AM – Stephen Clay McGehee – 0x7C57A3E5

(designer and developer of JS8Reporter)

The Public Key can be found here - <https://sitrepnet.com/public-keys/>

2. Change directory to `js8reporter`, then run the setup script:

➤ `cd js8reporter`

➤ Run one of the following, depending on your Operating System:

Pi / Linux / macOS	<code>python3 setup.py</code>
Windows	<code>python setup.py</code>

Setup will automatically create a virtual environment, then install required Python packages and download the North America shapefile map data. You may see it restart itself once - this is normal.

3. Start JS8Reporter as shown in the next section (STARTING THE PROGRAM).

4. Verify the map data installed correctly:

➤ Help > Map Setup (setup.py)...

The dialog will show "Map data status: Installed ✓" if successful.

Dependencies installed by setup.py

- `matplotlib` (map rendering and charting)
- `numpy` (numerical operations)
- `pyshp` (shapefile map data reader)
- `pillow` (image export)
- `python3-tk` (prerequisite, included with Python on most platforms)

3. STARTING THE PROGRAM

➤ Open a terminal (Pi/Linux/macOS) or Command Prompt (Windows) in the `js8reporter` directory, and then type:

Pi / Linux / macOS	<code>python3 js8reporter.py</code>
Windows	<code>python js8reporter.py</code>

Or, if you have created a desktop shortcut, double-click the shortcut icon.

On startup, JS8Reporter will automatically reload the last database that was opened, if one is available.

4. INTERFACE LAYOUT

The JS8Reporter window is divided into four main areas:

Menu Bar: File View Circle Reports Settings Help	
Loaded Assessments	Map of North America with color coded map pins Navigation Toolbar (zoom, pan, home)
Date Filter	Assessment Detail / Summary Table
Status Bar	Mode

Menu Bar

All program functions are accessed through the menu bar. See the individual sections below for details on each menu.

Left Panel — Loaded Assessments

Lists all assessments currently loaded into the program. Each entry shows the callsign, grid square, and report timestamp.

Color coding in the list:

- Normal text : Valid assessment
- Bold red : Assessment contains an ALERT
- Gray / italic : Assessment marked as invalid (excluded from map)

Click an entry to select it and view its full detail below.

- Press the Delete key while an entry is selected to mark it as invalid (or to restore it if it is already invalid). Marking an assessment as invalid removes it from the map and from all reports, but keeps it visible in the list for reference.

Date Filter

Located below the assessment list. Allows filtering by date range. See Section 9 for full details.

Map Area

Shows a color-coded map of North America. Each reporting station is represented by a map pin at its grid square location.

Pin colors represent infrastructure condition:

- Green (#28a745) = Score 3 – Fully Operational
- Yellow (#ffc107) = Score 2 – Degraded
- Orange (#fd7e14) = Score 1 – Severely Impaired
- Red (#dc3545) = Score 0 – Destroyed

The score displayed on each pin is determined by the Pin Color Mode setting (average of all fields, lowest field, category-specific, etc.).

The navigation toolbar below the map provides:

- Home – Return to the default full-map view
- Back – Go to previous zoom/pan view
- Forward – Go to next zoom/pan view
- Pan – Click and drag to pan the map
- Zoom – Draw a rectangle to zoom in

Click any map pin to select that assessment and view its detail.

Assessment Detail / Summary Table

- Displays either:
 - The full detail of the currently selected assessment, or
 - The summary table for all currently visible assessments (shown on startup and whenever no assessment is selected)

To return to the summary table after selecting an assessment, use View > Show Summary, or click an empty area of the assessment list.

Status Bar

- Shows the most recent program message (e.g., "Loaded 12 assessments from spotter.db").

Mode Indicator

- The blue label at the right of the status bar shows the current interaction mode (e.g., "Click map to set circle center").

5. LOADING ASSESSMENT DATA

JS8Reporter can load MCF505 assessment data from two sources:

Open Assessments Database (File > Open Assessments Database... Ctrl+D)

- Opens a JS8Spotter SQLite database file (.db). This is the primary way to load data that has been received over the air by JS8Spotter.
- JS8Reporter opens the database read-only and is safe to use while JS8Spotter is actively running and writing to the same file.
- The database path is remembered and the database is automatically reloaded the next time JS8Reporter starts.

Import MCF505 File (File > Import MCF505 File... Ctrl+O)

- Imports MCF505 assessments from a plain text file or a JS8Spotter CSV export file. Useful for loading manually prepared assessments or data exported from another system.
- Supported formats:
 - Plain text MCF505 form (as transmitted over JS8Call)
 - JS8Spotter CSV export

Automatic Deduplication

- When loading data, JS8Reporter automatically handles duplicates:
 - Station + Date deduplication:
 - If the same callsign submitted more than one assessment on the same calendar day, only the most recent submission for that day is shown.
 - Grid square deduplication:
 - If more than one assessment maps to the same grid square, the behavior is controlled by the Settings > Filters > Duplicate grid-square handling option (use most recent, or average scores).
-

6. THE ASSESSMENT LIST

The list on the left side of the window shows all loaded assessments, sorted by report creation date (most recent first).

Selecting an Assessment

- Click any entry to select it. The Assessment Detail panel updates to show that assessment's full field-by-field detail.
 - Click an empty area of the list to deselect and return to the Summary Table view.

Marking as Invalid / Restoring

- Select an assessment and press the Delete key.
 - If the assessment is valid, you will be asked to confirm marking it as invalid. Invalid assessments are grayed out in the list and excluded from the map and all reports.
 - If the assessment is already invalid (grayed out), you will be asked to confirm restoring it as valid.
- Invalid/valid status is remembered between sessions for the same database.

ALERT Records

- Assessments whose text contains the word "ALERT" are shown in bold red in the list and trigger the ALERT notification. See Section 12.
-

7. THE MAP

Map Pins

Each assessment with a valid grid square is shown as a color-coded pin on the map. The pin label shows the callsign and score.

Pin label display can be toggled in Settings > Pin Colors > "Always display Map Pin info". When unchecked, only the color pin is shown and you click it to see details.

Pin Color Modes (Settings > Pin Colors)

- Lowest score across all fields
 - Pin color reflects the single worst-scoring field in the assessment.
- Average of all fields
 - Pin color reflects the overall average score (default).
- Average within selected category
 - Pin color reflects the average score for one specific category.
- Lowest score within selected category
 - Pin color reflects the worst field within one specific category.

Circle Filter Overlay

When the Circle Filter is enabled, a circle is drawn on the map showing the filter boundary. Assessments outside the circle are excluded from the map and reports. See Section 10.

Map Navigation

- Use the navigation toolbar below the map to zoom and pan.
 - The Home button returns to the full North America view.
 - When the Time Lapse is running, the Left and Right arrow keys step backward and forward manually (only in manual step mode).
-

8. ASSESSMENT DETAIL AND SUMMARY TABLE

Summary Table

- Shown on startup and whenever no individual assessment is selected.
- Displays a grid of category averages for all currently visible assessments, with Min / Max / Avg columns.

To return to the summary table at any time:

- Use View > Show Summary, or

- Click an empty area in the assessment list.

Assessment Detail

- Shown when an assessment is selected in the list.
- Displays full information for that assessment
 - Callsign, grid square, coordinates, state, city/county
 - Report prepared timestamp and received timestamp
 - Source, SNR, frequency
 - Overall average score with color bar
 - Per-category scores with color bars
 - Field-by-field scores (fields 1–32)
 - Notes, if any

Score values:

- 3 – Fully Operational
 - 2 – Degraded
 - 1 – Severely Impaired
 - 0 – Destroyed
 - X – Unknown / Not Applicable (excluded from averages)
-

9. DATE FILTER

The Date Filter is located in the lower-left panel, below the assessment list. It restricts the map and all reports to assessments within a specified date range.

Date Filter Options

- No Filter
- Previous N-Days – Sets the date filter to show records from the number of previous days entered. This is continually updated keeping it constantly updated even if the program is kept running for days at a time.
- Specified Dates

Date Format

- Dates must be entered as: YYYY/MM/DD (e.g., 2025/03/14)
- The From and To fields use overtyping mode — type digits directly over the existing date. The cursor skips over the "/" separators automatically.

Adjusting Dates

- With the cursor in a date field, press:

- + or = to advance the date by one day
- - to move the date back by one day

Default Range

- When the filter is first enabled, it defaults to Previous 14 Days, then saves your last-used setting.

Buttons

- Apply – Activates the filter with the current From / To dates.
-

10. CIRCLE FILTER

The Circle Filter restricts the map and all reports to assessments whose grid square falls within a specified radius of a center point.

Setting the Circle Center

- Circle > Set Circle Center...
 - The mode indicator changes to "Click map to set circle center."
 - Click anywhere on the map to place the center point.
 - The circle is drawn immediately.

Configuring the Circle

- Circle > Configure Circle...
 - Opens the Settings dialog to the Circle tab, where you can enter the center latitude, longitude, and radius in miles directly.

Disabling the Circle

- Circle > Disable Circle
 - Removes the circle overlay and includes all assessments regardless of location.

Notes

- The circle is drawn as a geographic ellipse on the equal-aspect lat/lon map. It appears wider east-west at higher latitudes, which correctly represents equal distances in all directions.
-

11. TIME LAPSE

Time Lapse animates the map through assessment dates, allowing you to visualize how conditions have changed over time.

Starting and Stopping

- View > Time Lapse (checkboxbutton — checkmark shows when running)
- A checkmark next to the menu item indicates Time Lapse is active.
- Select it again to cancel.

If no dated assessments are available, Time Lapse cannot start and the checkmark is cleared automatically.

Time Lapse Modes

- Set in Settings > Filters > Time Lapse Mode:
- Rolling Window (default):
 - Shows assessments within a sliding window of N days ending on the current playback date. The window size is user-configurable (default: 14 days). This is the most useful mode for showing recent conditions as the date advances.
- Cumulative:
 - Shows all assessments up to and including the current playback date.
 - The map "builds up" as time advances. Assessments from the current playback date are highlighted.
- Snapshot:
 - Shows only assessments from the exact current playback date.

Playback Speed

- Set in Settings > Filters > Time Lapse Delay:
 - 0.5s — Fast (one date every half second)
 - 1s — Normal (one date per second, default)
 - Manual — Use the Left / Right arrow keys to step through dates

Time Lapse Settings

- View > Time Lapse Settings... opens the full Settings dialog where the mode, delay, and rolling window size can be configured.

12. ALERT DETECTION

JS8Reporter automatically scans incoming assessments for the word "ALERT" in the message text.

- When an ALERT Is Detected
 - The ALERT notification appears at the top of the window in bold red
 - A "Cancel Alert" button appears next to the notification
 - The assessment is displayed in bold red in the assessment list
 - Canceling the Alert
 - Click the "Cancel Alert" button to dismiss the notification.
 - The ALERT record remains in the list (in bold red) for reference. It will not re-trigger the notification within the same session.
 - Marking an Alert Record as Invalid
 - If an ALERT record is marked as invalid using the Delete key, the notification banner is automatically dismissed (since the record is no longer considered active).
 - Enabling / Disabling ALERT Detection
 - Settings > Preferences... > Filters tab > Alert enabled checkbox.
-

13. REPORTS

The Reports menu generates analytical text reports from the currently visible assessments (respecting the active Date Filter and Circle Filter).

- All reports open in a viewer window with:
 - Full scrollable text display
 - Save to Export Folder button (saves automatically with a timestamp)
 - Save As... button (choose any location)
 - Close button
- The report header shows which filters were active when the report was generated.

Report Descriptions

Area Assessment Summary

The primary summary table showing category averages for each reporting station, with Min / Max / Avg columns. This is the same table shown in the Assessment Detail / Summary Table panel.

Full Detail Report

Complete field-by-field detail for every visible assessment, formatted for printing or filing.

Score Rankings

All stations sorted from worst to best overall average score. Useful for quickly identifying the most severely affected areas.

Category Focus (submenu)

Select any of the eight MCF505 categories to see all stations' field-level scores for that category only. Stations are sorted worst to best for that category.

Categories available:

- Water
- Sewage/Waste
- Power
- Communications
- Economy
- Transportation
- Health/Safety
- Social/Political

Alert Records

Lists only the assessments that contain an ALERT, with full detail for each. Shows "No ALERT records found" if none are present.

Geographic Summary

Assessments grouped and subtotaled by state, sorted alphabetically. Useful for briefing by jurisdiction.

Critical Infrastructure

Lists every infrastructure field (1–32) that has been scored 0 (Destroyed) or 1 (Severely Impaired) by any station. Sorted by field number, showing which stations reported each critical condition.

Trend Analysis

Shows only stations that submitted assessments on more than one date, with scores for each date and an arrow (↑ / ↓ / →) indicating the direction of change. Useful for tracking whether conditions are improving or deteriorating.

Infrastructure Heat Map

For each category, shows how many field scores fall at each level (0 / 1 / 2 / 3 / N/A), with percentages. Gives a quick overview of the overall distribution of conditions.

Data Quality / Coverage

Lists each station with the number of fields reported, the completion percentage, and the age of the assessment in days. Useful for identifying incomplete or outdated reports.

Worst Conditions

Ranks stations by their single worst category average score (lowest first). Highlights where the most severe problems are concentrated.

Network Coverage

Lists all reporting grid squares with their latitude/longitude coordinates and the date of their most recent assessment. Sorted north-to-south, west-to-east. Useful for mapping network coverage.

14. EXPORTING DATA

Save Text Report (File > Save Text Report... Ctrl+S)

- Saves a combined text file containing the Area Assessment Summary table followed by the full detail for every visible assessment.

Export Data (File > Export Data... Ctrl+T)

- Exports all visible assessments as a CSV or TSV file with one row per assessment. Columns include callsign, grid, state, timestamps, all category averages, and all 32 individual field scores.
- The format (CSV or TSV) is set in Settings > Export.

Export Map Image (File > Export Map Image... Ctrl+E)

- Saves the current map view as an image file.
- Supported formats: PNG (default), JPEG, SVG.
- The format is set in Settings > Export.

Export Folder

- Report viewer windows include a "Save to Export Folder" button that saves the report automatically to the designated export folder with a timestamp-based filename (no dialog required).
 - The default export folder is: <program folder>/data/exports/
 - A custom export folder can be set in Settings > Export > Default export folder.
-

15. SETTINGS

Open via Settings > Preferences... or Ctrl+,

Pin Colors Tab

- Pin color mode:
- Controls what score drives the color of each map pin.
- Options:
 - Lowest all fields
 - Average all fields (default)
 - Average in category
 - Lowest in category.

Category:

The category used when a category-specific pin color mode is selected.

Rounding for averages:

- How averaged scores are rounded to a whole-number color level.
- Options: Standard rounding (default), Always round up, Always round down.

Map pin labels:

- When checked, each pin shows the callsign and score.
- When unchecked, only the color pin is shown (click to see details).

Filters Tab

- Duplicate grid-square handling:
 - When two assessments share the same grid square, use only the most recent (default) or average the scores.

Category display filter:

- Limit the map and reports to selected categories only.
- Leave all checked (default) to include all categories.

Time Lapse mode:

- Rolling Window (default), Cumulative, or Snapshot. See Section 11.

Rolling window days:

- Number of days in the rolling window (default: 14).

Time Lapse delay:

- Playback speed: 0.5s, 1s, or Manual.

Alert enabled:

- Enable or disable ALERT detection.

Circle Tab

- Circle center latitude and longitude, and radius in miles. These can also be set by clicking on the map (Circle > Set Circle Center...) or via Circle > Configure Circle....

Export Tab

- Map image format: PNG (default), JPEG, SVG.

Tabular data export format: CSV (default) or TSV.

Default export folder:

- Folder used by "Save to Export Folder" in report windows.
 - Leave blank to use the default data/exports/ folder.
 - Click Browse... to select a folder.

Auto-Update Tab

- Check for updates on startup
- When enabled, JS8Reporter checks SitRepNet.com for a newer release at startup (requires internet). Offline operation is never affected.
- Update operation is done manually – no changes are made without user action.

Version check URL:

- A .JSON file on the SitRepNet.com site is used for version checks.
- Leave the URL field blank to disable.

16. KEYBOARD SHORTCUTS

Delete Key - Mark selected assessment as invalid / restore if invalid

+ or = (in date field) Advance date by one day
- (in date field) Move date back by one day

Left (Time Lapse, manual mode) Step back one date
Right (Time Lapse, manual mode) Step forward one date

17. TROUBLESHOOTING

Map does not display / shows "matplotlib not installed"

- Run the setup script to install required packages:
 - `cd /home/<username>/js8reporter`
 - `bash setup.sh`

- Then restart JS8Reporter.

Map displays but shows no country/state borders

- The shapefile map data is missing. Run:
 - `bash setup.sh`
 - Check Help > Map Setup (setup.sh)... to verify installation status.

No assessments loaded from the database

- Use Help > DB Diagnostic... to inspect the database. JS8Reporter looks for rows in the "forms" table with typeid containing "505". Verify that JS8Spotter has received and stored at least one MCF505 form.
- Common causes:
 - The database file selected is not a JS8Spotter database
 - No MCF505 forms have been received yet
 - The forms were stored under an unexpected typeid value (the diagnostic will show what typeids are present)

Map pins appear but in the wrong location

- The grid square field in the assessment may contain an invalid or unusual grid locator. Select the assessment and check the Grid field in the detail panel.

Date filter is not showing expected assessments

- Verify the From and To dates are entered correctly in YYYY/MM/DD format. Check that the Enable checkbox is checked and Apply was pressed.
- Also check whether the assessment's date falls in the filter range. The filter uses the received date if available, otherwise the report prepared date.

Time Lapse starts but the map does not change

- If only one unique date is present in the visible assessments, Time Lapse has nothing to step through. Try disabling the Date Filter or expanding the date range.

Auto-update check fails silently

- The update check runs in the background and fails silently if the network is unavailable. This is by design — offline operation is never affected.
- To disable the check entirely: Settings > Preferences > Auto-Update >
 - uncheck "Check for updates on startup".

18. APPENDIX

File Formats for Importing

Format 1: Plain Text MCF505 (over-the-air / JS8Call)

A plain text file (.txt or any extension). May contain multiple records — the parser splits on each F!505 marker.

Message structure:

F!505 <scores> ST[XX] GR[XXXX] CT[text] #XXXX

Field	Required	Description
F!505	Yes	Form type marker (spacing and ! are flexible)
<scores>	Yes	Exactly 32 characters: digits 0–3 or X (unknown/N/A)
ST[XX]	No	Two-letter state abbreviation
GR[XXXX]	No	Maidenhead grid square (4 or 6 characters)
CT[text]	No	City/county name (up to 60 characters)
#XXXX	No	4-character datecode encoding prepared time (UTC)

Score values:

- 3 = Good/Functional
- 2 = Degraded
- 1 = Minimal
- 0 = None/Destroyed
- X = Unknown/N/A

Datecode format (#MDHM):

- M — Month: A=Jan ... L=Dec
- D — Day: A=1 ... Z=26, 0=27 ... 4=31
- H — Hour (UTC): A=0 ... X=23
- M — Minute: A=0, B=2 ... Z=50, 0=52 ... 3=58 (2-minute resolution)

Checksums in {HEX} or [CRC:...] notation are stripped and ignored.

Sample

```
F!505 32100X3210023210032100321003 ST[TX] GR[EM10] CT[Travis County] #CEK0
F!505 2X3210032100X21003210032100 ST[OK] GR[EM25ab] CT[Oklahoma City] #CFK2
```

Format 2: JS8Spotter CSV Export

A comma-separated values file (.csv). Detected either by file extension or by the presence of commas and newlines. Column names are case-insensitive.

Required column (one of):

Accepted names	Contains
msgtxt, message, msg, text, body, data	The full MCF505 message text (must contain F!505 and a 32-char score string)

Optional columns

Accepted names	Contains
fromcall, callsign, call, from, de	Originating station callsign
timesig, timestamp, time, datetime, lm	Prepared time — datecode (#XXXX) or parseable datetime string

Any additional columns are ignored.

Sample

```
fromcall,msgtxt,timesig
W5ABC,F!505 32100X3210023210032100321003 ST[TX] GR[EM10] CT[Travis County],#CEK0
KD5XYZ,F!505 2X3210032100X21003210032100 ST[OK] GR[EM25ab] CT[Oklahoma City],#CFK2
N5QRP,F!505 33322X1100332211003322110033 ST[NM] GR[DM65] CT[Bernalillo County],#CFM4
```

Note: In this sample, the first line is a header that defines the data records.

19. KNOWN ISSUES

① If a report shows a future date, this indicates the sending station's system clock was incorrect when the form was prepared. The assessment scores remain valid. Future-dated reports can be excluded using the date filter if needed.

End of JS8Reporter User Manual
 JS8Reporter is designed and developed by Stephen Clay McGehee, KN4AM
 Coding done using Claude Code AI
 See SitRepNet.com for more information.
 Use Contact form at SitRepNet.com for suggestions and bug reports.

