Contest Log Analyzer - User Guide

Version: 0.40.2-Beta Date: 2025-08-25

--- Revision History ---

[0.40.2-Beta] - 2025-08-25

Added

- Added the required `band_allocations.dat` file to the list of

required data files in Section 2.

[0.40.1-Beta] - 2025-08-24

Added

- Added the --debug-mults flag to the Command-Line Options list.

- Added "ARRL Field Day" to the list of supported contests.

- Added the 'chart_point_contribution' report to the list of available reports.

Changed

- Updated the description for SweepstakesSections.dat to include ARRL Field Day.

[0.40.0-Beta] - 2025-08-19

Changed

- Updated the "Available Reports" list to be complete.

[0.37.0-Beta] - 2025-08-18

Changed

- Aligned version with other documentation files.

- Corrected the list of required data files in Section 2.

- Updated the Command-Line Options list in Section 3 to include

the --debug-data flag.

[0.36.8-Beta] - 2025-08-15

Changed

- Updated lists of required data files, CLI options, and supported

contests to be complete and accurate.

[0.35.25-Beta] - 2025-08-15

Changed

- Updated the "Available Reports" list and the `--report` argument

description to be consistent with the current codebase.

[0.30.31-Beta] - 2025-08-11

Changed

- Updated the "Available Reports" section to be complete and accurate

based on the current project state.

[0.30.30-Beta] - 2025-08-05

- Updated environment variable and --report argument documentation.

[0.30.0-Beta] - 2025-08-05

- Initial release of Version 0.30.0-Beta.

- Standardized all project files to a common baseline version.

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1. Introduction: What is the Contest Log Analyzer?

[cite_start][cite: 1940, 2184][cite_start]The Contest Log Analyzer is a powerful command-line tool designed for amateur radio contesters who want to perform deep, data-driven analysis of their operating performance. [cite: 2184] [cite_start][cite: 824, 1940][cite_start]It goes beyond the simple score summary provided by most logging software, allowing you to: [cite: 825, 1940, 2185]

[cite_start]* [cite: 826, 1941, 2186][cite_start]Process raw Cabrillo log files into a clean, standardized format. [cite: 2186] [cite_start]* [cite: 827, 1941, 2187][cite_start]Automatically classify every QSO as "Run,"

"Search & Pounce," or "Unknown" to analyze your operating strategy. [cite: 2187] [cite_start]* [cite: 828, 1941, 2188][cite_start]Generate detailed reports and charts that compare your log against one or more others. [cite: 2188] [cite_start]* [cite: 829, 1941, 2189][cite_start]Analyze performance on a band-by-band basis to identify strengths and weaknesses. [cite: 2189] [cite_start]* [cite: 830, 1941, 2190][cite_start]Calculate contest-specific QSO points for supported contests. [cite: 2190] [cite_start][cite: 830, 1941, 2190][cite_start]The ultimate goal of this program is to help you understand your contest operation in minute detail, identify missed opportunities, and improve your strategy for the next event. [cite: 2190]

2. What You Need to Get Started

Before running the analyzer, you will need a few files:

[cite_start]* [cite: 831, 1942, 2191][cite_start]**Your Cabrillo Log File(s):** These are the standard log files generated by your contest logging software (e.g., `kd4d.log, n0ni.log`). [cite: 2191] [cite_start][cite: 832, 1942, 2192][cite_start]**You can analyze a single log or compare multiple logs at once.** [cite: 2192] [cite_start]* [cite: 833, 1942, 2193][cite_start]**Data Files: The program requires specific data files to be placed in a central `data/` directory.** [cite: 2193] [cite_start]* [cite: 834, 1942, 2194][cite_start]`cty.dat`: **Required for all contests.** [cite: 2194] [cite_start]* [cite: 835, 1942, 2195][cite_start] `arrl_10_mults.dat`: **Required for the ARRL 10 Meter contest.** [cite: 2195] [cite_start]* [cite: 836, 1942, 2196][cite_start]`ARRLDXmults.dat`: **Required for the ARRL DX contest.** [cite: 2196] [cite_start]* [cite: 837, 1942, 2197][cite_start]`NAQPmults.dat`: **Required for NAQP and CQ 160-Meter contests.** [cite: 2197] * [cite_start] `SweepstakesSections.dat`: **Required for ARRL Sweepstakes and ARRL Field Day.** [cite: 1917, 2198] * `band_allocations.dat`: **Required for all contests to perform frequency validation.** [cite_start]* [cite: 839, 1942, 2199][cite_start]**An Environment Variable: You must tell the program where to find your data files by setting an environment variable named** `CONTEST_LOGS_REPORTS`. [cite: 2199]

[cite_start][cite: 840, 1942, 2200][cite_start]**This variable should point to the root directory that contains your `Logs`, `data`, and `reports` subdirectories. [cite: 2200]**

3. How to Run the Analyzer

[cite_start][cite: 841, 1942, 2201][cite_start]The program is run from your command prompt or terminal using `main_cli.py`. [cite: 2201]

Basic Syntax

```
python main_cli.py --report <ReportID|all|chart|text|plot|animation> <LogFile1> [<LogFile2>..
```

Command-Line Options

[cite_start]* [cite: 842, 1942, 2202][cite_start]`--report <ReportID|all|chart|text|plot|animation>`: (Required) Specifies which report to generate. [cite: 2202] [cite_start][cite: 843, 1942, 2203][cite_start]Use a specific `ReportID` (e.g., `score_report`), `all` to generate every available report, or a category keyword like `chart` to run all chart reports. [cite: 2203] [cite_start]* [cite: 844, 1942, 2204][cite_start]`<LogFile1> ...`: (Required) One or more paths to the Cabrillo log files you want to analyze. [cite: 2204]

- `--verbose`: (Optional) Enables detailed `INFO`-level status messages for debugging. [cite_start]* [cite: 845, 1942, 2205][cite_start]`--include-dupes`: (Optional) By default, duplicate QSOs are ignored. [cite: 2205] [cite_start][cite: 846, 1942, 2206][cite_start]Use this flag to include them in all calculations. [cite: 2206] [cite_start]* [cite: 847, 1942, 2207][cite_start]`--mult-name <name>`: (Optional) For reports that analyze multipliers (like `missed_multipliers`), this specifies which multiplier to use (e.g., 'Countries', 'Zones'). [cite: 2207] [cite_start]* [cite: 848, 1942, 2208][cite_start]`--metric <qsos|points>`: (Optional) For the `cumulative_difference_plots` report, this specifies whether to compare QSO counts or Point totals. [cite: 2208] Defaults to 'qsos'. [cite_start]* [cite: 849, 1942, 2209][cite_start]`--debug-data`: (Optional) When used with a visual report (chart, plot, animation), this saves the report's source data to a `.txt` file in a `Debug/` subdirectory. [cite: 2209]
- [cite_start]`--debug-mults`: (Optional) Save intermediate multiplier lists from text reports for debugging. [cite: 2172, 2210]

Examples

- **Generate all available reports for two logs:**

```
python main_cli.py --report all 2025/cq-160-cw/kd4d.log 2025/cq-160-cw/n0ni.log
```

- **Generate only the text reports for two logs:**

```
python main_cli.py --report text 2025/cq-160-cw/kd4d.log 2025/cq-160-cw/n0ni.log
```

- **Generate a specific report (Score Summary) for a single log:**

```
python main_cli.py --report score_report 2025/cq-160-cw/kd4d.log
```

-

Generate a Missed Multipliers report for CQ WW Zones:

```python
python main_cli.py --report missed_multipliers --mult-name Zones Logs/2024/cq-ww-cw/k3lr.log Logs/2024/cq-ww-cw/kc1xx.log
```

4. Supported Contests

[cite_start][cite: 850, 1942, 2211][cite_start]The analyzer uses the `CONTEST:` field in your Cabrillo file header to automatically apply the correct rules. [cite: 2211] The following contests are currently supported:

- ARRL 10 Meter
- ARRL DX (CW & SSB)
- [cite_start]ARRL Field Day [cite: 2172]
- ARRL Sweepstakes (CW & SSB)
- CQ 160-Meter (CW & SSB)
- CQ WPX (CW & SSB)
- CQ World Wide DX (CW & SSB)
- North American QSO Party (NAQP) (CW & SSB)

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5. Available Reports

[cite_start][cite: 851, 1942, 2212][cite_start]Use the `Report ID` with the `--report` command-line option. [cite: 2212]

Animation Reports (`animations/`)

- `hourly_animation`: Hourly Rate Animation

Chart Reports (`charts/`)

- [cite_start]`chart_point_contribution`: Point Contribution Breakdown (Comparative) [cite: 2172]
- `chart_point_contribution_single`: Point Contribution Breakdown (Single Log)
- `qso_breakdown_chart`: QSO Breakdown by Run/S&P

Plot Reports (`plots/`)

- `band_activity_heatmap`: Band Activity Heatmap
- `comparative_band_activity`: Comparative Band Activity
- `comparative_band_activity_heatmap`: Comparative Band Activity Heatmap
- `cumulative_difference_plots`: Cumulative Difference Plot
- `point_rate_plots`: Cumulative Point Rate Plot
- `qso_rate_plots`: Cumulative QSO Rate Plot

Text Reports (`text/`)

- `comparative_continent_summary`: Comparative Continent Summary
- `comparative_score_report`: Comparative Score Report
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- `continent_breakdown`: Continent Breakdown by Run/S&P
- `continent_summary`: Continent Summary
- `missed_multipliers`: Missed Multipliers
- `multiplier_summary`: Multiplier Summary
- `multipliers_by_hour`: Multipliers by Hour
- `qso_comparison`: QSO Comparison Summary
- `rate_sheet`: Rate Sheet (per hour)
- `rate_sheet_comparison`: Rate Sheet Comparison
- `score_report`: Score Report
- `summary`: QSO Summary by Run/S&P