Contest Log Analyzer - User Guide

Version: 0.40.0-Beta Date: 2025-08-19

--- Revision History ---

[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]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: 715] [cite_start]It goes beyond the simple score summary provided by most logging software, allowing you to: [cite: 716]

- [cite_start]Process raw Cabrillo log files into a clean, standardized format. [cite: 717]
- [cite_start]Automatically classify every QSO as "Run," "Search & Pounce," or "Unknown" to analyze your operating strategy. [cite: 718]
- [cite_start]Generate detailed reports and charts that compare your log against one or more others. [cite: 719]
- Analyze performance on a band-by-band basis to identify strengths and weaknesses.
- [cite_start]Calculate contest-specific QSO points for supported contests. [cite: 720] [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: 721]

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2. What You Need to Get Started

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

- [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: 722] [cite_start]You can analyze a single log or compare multiple logs at once. [cite: 723]
- [cite_start]**Data Files**: The program requires specific data files to be placed in a central `data/` directory. [cite: 724]
    - [cite_start]`cty.dat`: Required for all contests. [cite: 725]
    - [cite_start]`arrl_10_mults.dat`: Required for the ARRL 10 Meter contest. [cite: 725]
    - [cite_start]`ARRLDXmults.dat`: Required for the ARRL DX contest. [cite: 726]
    - [cite_start]`NAQPmults.dat`: Required for NAQP and CQ 160-Meter contests. [cite: 726]
    - [cite_start]`SweepstakesSections.dat`: Required for ARRL Sweepstakes. [cite: 727]
- [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: 727] [cite_start]This variable should point to the root directory that contains your `Logs`, `data`, and `reports` subdirectories. [cite: 728]

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3. How to Run the Analyzer

[cite_start]The program is run from your command prompt or terminal using `main_cli.py`. [cite: 729]

Basic Syntax

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

Command-Line Options

- [cite_start]`--report <ReportID|all|chart|text|plot|animation>`: (Required) Specifies which report to generate. [cite: 730] [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: 731]
- [cite_start]`<LogFile1> ...`: (Required) One or more paths to the Cabrillo log files you want to analyze. [cite: 732]
- `--verbose`: (Optional) Enables detailed `INFO`-level status messages for debugging.
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[cite_start]`--include-dupes`: (Optional) By default, duplicate QSOs are ignored. [cite: 733] Use this flag to include them in all calculations.
- [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: 734]
- [cite_start]`--metric <qsos|points>`: (Optional) For the `cumulative_difference_plots` report, this specifies whether to compare QSO counts or Point totals. [cite: 735] Defaults to 'qsos'.
- [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: 736]

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

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4. Supported Contests

[cite_start]The analyzer uses the `CONTEST:` field in your Cabrillo file header to automatically apply the correct rules. [cite: 737] The following contests are currently supported:

- ARRL 10 Meter
- ARRL DX (CW & SSB)
- 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]Use the `Report ID` with the `--report` command-line option. [cite: 738]

Animation Reports (`animations/`)

- `hourly_animation`: Hourly Rate Animation

Chart Reports (`charts/`)

- `chart_point_contribution`: Point Contribution Breakdown (Comparative)
- `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
- `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