

# Contest Log Analyzer - User Guide

Version: 0.56.31-Beta Date: 2025-09-03

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## --- Revision History ---

**[0.56.31-Beta] - 2025-09-03**

**Changed**

**- Corrected the report ID for the QSO Breakdown Chart to align with the source code.**

**[0.56.30-Beta] - 2025-09-01**

**Fixed**

**- Added the missing `iaru_officials.dat` file to the list of required data files.**

**[0.55.0-Beta] - 2025-08-29**

**Added**

**- Added "IARU HF World Championship" to the list of supported contests.**

**[0.54.3-Beta] - 2025-08-29**

**Changed**

**- Updated the --report argument and "Available Reports" list to**

**include all current report types and IDs.**

**[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?**

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. It goes beyond the simple score summary provided by most logging software, allowing you to:

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

**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.**

## 2. What You Need to Get Started

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

- **Your Cabrillo Log File(s):** These are the standard log files generated by your contest logging software (e.g., `kd4d.log`, `n0ni.log`). You can analyze a single log or compare multiple logs at once.
  - **Data Files:** The program requires specific data files to be placed in a central `data/` directory.
    - `cty.dat`: Required for all contests.
    - `arrl_10_mults.dat`: Required for the ARRL 10 Meter contest.
    - `ARRLDXmults.dat`: Required for the ARRL DX contest.
    - `NAQPMults.dat`: Required for NAQP and CQ 160-Meter contests.
    - `SweepstakesSections.dat`: Required for ARRL Sweepstakes and ARRL Field Day.
    - `band_allocations.dat`: Required for all contests to perform frequency validation.
    - `iaru_officials.dat`: Required for the IARU HF World Championship contest.
  - **An Environment Variable:** You must tell the program where to find your data files by setting an environment variable named `CONTEST_LOGS_REPORTS`. This variable should point to the root directory that contains your `Logs`, `data`, and `reports` subdirectories.
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## 3. How to Run the Analyzer

The program is run from your command prompt or terminal using `main_cli.py`.

### Basic Syntax

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

### Command-Line Options

- `--report <ReportID|all|chart|text|plot|animation|html>`: (Required) Specifies which report to generate. 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.
- `<LogFile1> ...`: (Required) One or more paths to the Cabrillo log files you want to analyze.
- `--verbose`: (Optional) Enables detailed `INFO`-level status messages for debugging.
- `--include-dupes`: (Optional) By default, duplicate QSOs are ignored. Use this flag to include them in all calculations.
- `--mult-name <name>`: (Optional) For reports that analyze multipliers (like `missed_multipliers`), this specifies which multiplier to use (e.g., 'Countries', 'Zones').
- `--metric <qsos|points>`: (Optional) For the `cumulative_difference_plots` report, this specifies whether to compare QSO counts or Point totals. Defaults to 'qsos'.
- `--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.
- `--debug-mults`: (Optional) Save intermediate multiplier lists from text reports for debugging.

### 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

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

- ARRL 10 Meter
  - ARRL DX (CW & SSB)
  - ARRL Field Day
  - ARRL Sweepstakes (CW & SSB)
  - CQ 160-Meter (CW & SSB)
  - CQ WPX (CW & SSB)
  - CQ World Wide DX (CW & SSB)
  - IARU HF World Championship
  - North American QSO Party (NAQP) (CW & SSB)
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## 5. Available Reports

Use the `Report ID` with the `--report` command-line option.

### Animation Reports (`animations/`)

- `hourly_animation`: Hourly Rate Animation

### HTML Reports (`html/`)

- `html_qso_comparison`: HTML QSO Comparison Report

### Chart Reports (`charts/`)

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- `chart_point_contribution`: Point Contribution Breakdown (Comparative)
- `chart_point_contribution_single`: Point Contribution Breakdown (Single Log)
- `chart_qso_breakdown`: 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
- `comparative_run_sp_timeline`: Comparative Activity Timeline (Run/S&P)
- `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