

Contest Log Analyzer

Version: 0.86.5-Beta Date: 2025-09-18

--- Revision History ---

[0.86.5-Beta] - 2025-09-18

Changed

- Corrected the report ID for the comparative rate sheet to align with the source code.

[0.86.4-Beta] - 2025-09-15

Changed

- Synchronized the "Supported Contests" and "Available Reports" sections with the current project baseline.

[0.55.1-Beta] - 2025-09-03

Changed

- Synchronized the "Available Reports" list with the current codebase by correcting one report ID and adding a missing report name.

[0.55.0-Beta] - 2025-08-29

- Initial release.
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Key Features

- **Data-Driven Architecture:** Uses simple JSON files to define the rules, scoring, and exchange formats for each contest, making the tool highly extensible.
 - **Run/S&P Heuristics:** A sophisticated, multi-pass heuristic analyzes QSO timing and frequency to classify each contact as "Run," "Search & Pounce," or "Unknown," providing a clear picture of operating strategy.
 - **Unique vs. Common QSO Analysis:** The analyzer precisely identifies "unique" QSOs (worked by only one of two logs) and "common" QSOs (worked by both), breaking them down by Run/S&P status to reveal strategic advantages.
 - **Cumulative Difference Plots:** Goes beyond traditional rate graphs by presenting QSO and Point rate data in "Cumulative Difference Plots," which visualize performance trends and momentum shifts much more clearly.
 - **Animated Hourly Replay:** Generates an MP4 video that visualizes the entire contest on an hour-by-hour basis, showing cumulative scores, QSO rates, and band-by-band totals for up to three logs.
 - **Annotated CSV Output:** Generates detailed, "annotated" CSV files from the processed logs, perfect for loading into Excel or other tools for custom analysis and prototyping.
 - **Contest-Specific Scoring:** A modular system calculates QSO points based on the official rules for supported contests (ARRL-DX, ARRL-SS, CQ-WPX, CQ-WW).
 - **Dynamic Reporting Engine:** A flexible, "plug-and-play" system for generating a wide variety of text, plot, and chart-based reports.
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Usage

The analyzer is run from the command line using `main_cli.py`.

Basic Syntax

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

Examples

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

CODE_BLOCK `python main_cli.py --report all Logs/2024/cq-ww-cw/k3lr.log Logs/2024/cq-ww-cw/kc1xx.log` **CODE_BLOCK**

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

CODE_BLOCK `python main_cli.py --report score_report Logs/2024/cq-ww-cw/k3lr.log` **CODE_BLOCK**

- **Generate a Missed Multipliers report for CQ WW Zones:**

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

Supported Contests

The analyzer uses the **CONTEST:** field in the Cabrillo header to apply contest-specific rules. The following contests are currently supported:

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

All generated files are saved to a structured directory under **reports/YYYY/CONTEST_NAME/**.

Animation Reports (animations/)

- **hourly_animation:** Hourly Rate Animation

HTML Reports (html/)

- **html_qso_comparison:** HTML QSO Comparison Report

Chart Reports (charts/)

- **chart_point_contribution:** Point Contribution Breakdown
- **chart_point_contribution_single:** Point Contribution Breakdown (Single Log)
- **chart_qso_breakdown:** QSO Breakdown Chart

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 Plots
- `point_rate_plots`: Point Rate Comparison Plots
- `qso_rate_plots`: QSO Rate Comparison Plots

Text Reports (text/)

- `comparative_continent_summary`: Comparative Continent QSO Summary
 - `rate_sheet_comparison`: Comparative Rate Sheet
 - `comparative_score_report`: Comparative Score Report
 - `continent_breakdown`: Continent QSO Breakdown
 - `continent_summary`: Continent QSO Summary
 - `missed_multipliers`: Missed Multipliers Report
 - `multiplier_summary`: Multiplier Summary
 - `multipliers_by_hour`: Multipliers by Hour
 - `qso_comparison`: QSO Comparison Summary
 - `rate_sheet`: Hourly Rate Sheet
 - `score_report`: Score Summary
 - `summary`: QSO Summary
 - `text_wae_comparative_score_report`: WAE Comparative Score Report
 - `text_wae_score_report`: WAE Score Summary
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