

# Contest Log Analyzer - User Guide

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--- Revision History ---

[0.62.0-Beta] - 2025-09-08

Changed

- Updated documentation to reflect the new two-directory and two-environment-variable

system (CONTEST\_INPUT\_DIR and CONTEST\_REPORTS\_DIR).

[0.56.31-Beta] - 2025-09-03

Changed

- Corrected the report ID for the QSO Break-down 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 <sup>2</sup>

Added

- Added the required band\_allocations.dat file to the list of

required data files in Section 2

## 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 and some configuration:

- **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.
- **Environment Variables:** You must tell the program where to find your input files and where to save your output reports by setting two environment variables:
  - `CONTEST_INPUT_DIR`: This variable must point to the root directory that contains your `Logs` and `data` subdirectories. This can be inside a cloud-synced folder like OneDrive.
  - `CONTEST_REPORTS_DIR`: This variable must point to the directory where the analyzer will create its `reports` output

folder. **This must be a local, non-synced path** (e.g., `C:\Users\YourUser\HamRadio\CLA`) to avoid file-locking errors.

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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. The path should be relative to the `Logs` subdirectory in your `CONTEST_INPUT_DIR`.
- `--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:** `CODE_BLOCK`  
`python main_cli.py --report all 2025/cq-160-cw/kd4d.log 2025/cq-160-cw/n0ni.log` `CODE_BLOCK`
- **Generate only the text reports for two logs:** `CODE_BLOCK`  
`python main_cli.py --report text 2025/cq-160-cw/kd4d.log 2025/cq-160-cw/n0ni.log` `CODE_BLOCK`

- **Generate a specific report (Score Summary) for a single log:** `CODE_BLOCK python main_cli.py --report score_report 2025/cq-160-cw/kd4d.log CODE_BLOCK`
  - **Generate a Missed Multipliers report for CQ WW Zones:** `CODE_BLOCK python main_cli.py --report missed_multipliers --mult-name Zones 2024/cq-ww-cw/k3lr.log 2024/cq-ww-cw/kc1xx.log CODE_BLOCK`
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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/`)

- `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