Wahoo! Results

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CHAPTER

ONE

DOWNLOAD

Download the latest version

Version 1.2.0 - 09/04/2023 - wahoo-results.exe See it (and previous releases) on the GitHub releases page.

The scoreboard is packaged as a single executable, and no installation is necessary. The above executable is all you need to get started.

Want to know what's changed? Check out the changelog!

User preferences are saved in a `wahoo-results.ini` file in the same directory as the executable. If it doesn't exist, it will be created when the program is first run.

CHAPTER

TWO

QUICKSTART

Contents

Quickstart

- *Installation*
- *Set the number of lanes*
- *Create start lists*
- *Set the start list directory*
- *Import the event file*
- *Configure result files*
- *Set the results directory*
- *Connect Chromecast(s)*
- *Go!*

Follow this quickstart guide to get started with the scoreboard. It covers installation and the minimal steps required to display race results. Advanced configuration, such as theming, is covered elsewhere.

2.1 Installation

As a first step, download the latest release from the *download page*.

Once you have downloaded the scoreboard executable, start it.

The first time you run the program, you may receive a warning about it being an "unknown application". Go ahead and run it anyway.

You will also receive a warning from Windows Firewall about allowing Wahoo! Results to listen for incoming connections. It is necessary to grant this permission so that the Chromecast devices will be able to fetch the scoreboard images.

2.2 Set the number of lanes

The first screen that comes up will be the "Configuration" tab. For now, the only setting to change is the number of lanes that are displayed.

On the right side, set "Lanes" to the number of lanes in your pool. The preview image in the lower right will update to show an example of how the scoreboard will look.

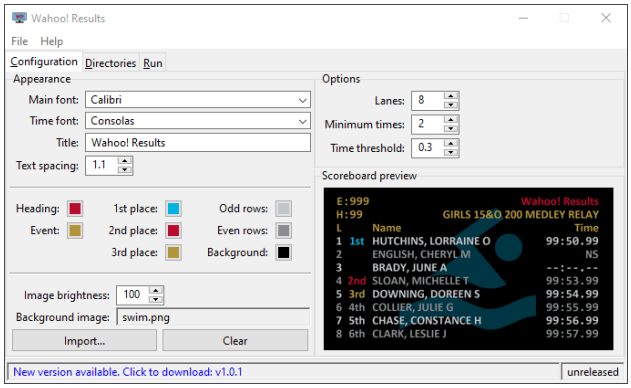

Fig. 1: Configuration tab

2.3 Create start lists

The next thing to do is export the "start lists" from your meet management software. The start lists used by Wahoo! Results are the same as those for Colorado scoreboards. They contain information about each event and the names of the swimmers in each heat.

Meet Manager

In Meet Manager, start lists can be created by selecting:

> File > Export > Start Lists for Scoreboard > Start Lists for CTS (Click here for an example)

Meet Maestro

The desktop version of Meet Maestro (free from Swimtopia's web site) is required to generate the start list files. They cannot be exported by the web version currently.

To export the start lists:

Settings (gear icon in the upper right) > Timing Setup > Scoreboards > "Export start lists for CTS" (Click here for an example)

The above steps will create a series of files named `E<###>.scb`, one for each event in the session(s) that were exported. The start lists should all be placed into a directory that Wahoo! Results will be able to access.

2.4 Set the start list directory

Now you will tell Wahoo! Results where to find the start list files.

Switch back to the Wahoo! Results application and go to the "Directories" tab. The left side is where you set the location for the start list files.

Click "Browse" and navigate to the directory where you saved the start lists in the previous step.

Wahoo! Results will read all the start lists and summarize them in the window. It will list the event number, description, and the number of heats in each event.

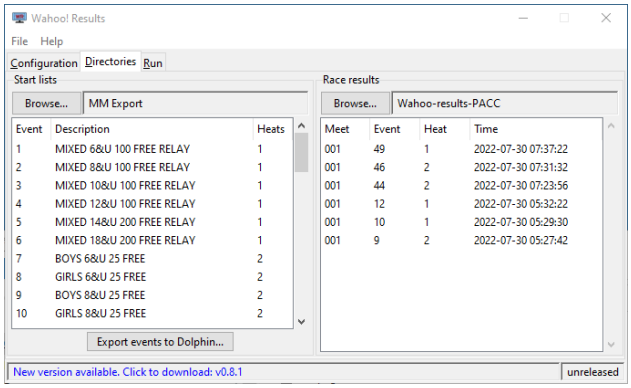

Fig. 2: Directories tab

If this looks good, press the "Export events to Dolphin…" button. This will write a `dolphin_events.csv` file into the start list directory. This file contains the event data for the Dolphin timing software.

2.5 Import the event file

You will now load the event list into the Dolphin software. It will provide the event numbers, descriptions, and number of heats for each event. **Having the correct event and heat number in the Dolphin software is required for the scoreboard to correctly recognize the race results.**

In the Dolphin software, navigate to the "Events" screen and click "Load." Select the `dolphin_events.csv` that you just created. This will populate the event screen with all the events and their heat counts.

Fig. 3: Dolphin "Events" configuration

2.6 Configure result files

Still in the Dolphin software, switch to the "Settings" screen. Here, you will configure the location and type of race results the Dolphin software will generate.

Wahoo! Results reads race results from Dolphin `D04` files, so ensure that format is enabled. It's fine to enable other formats as well.

Make a note of the log directory that is being used. This is where the result files will be written. You will configure Wahoo! Results with this directory in the next step.

2.7 Set the results directory

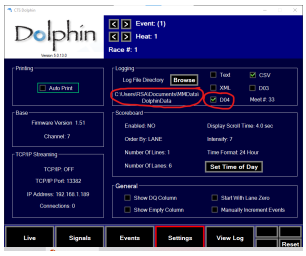

Fig. 4: Dolphin "Settings" screen

You will now set the location where Wahoo! Results will look for race results.

Switch back to the Wahoo! Results program, still in the "Directories" tab. The right side of the window is for race results.

Click "Browse…" and navigate to the "Log file directory" that was set in the Dolphin software.

In the right half of the window, any existing race results that are found will be displayed. The race results are ordered by time.

2.8 Connect Chromecast(s)

The final step is to connect the Chromecast devices that will be used to display the scoreboard.

Switch to the "Run" tab.

In the upper right of the screen is a window that will display the name of all the Chromecast devices on your network.

Click on a device to enable it. The Enabled column will switch to "Yes", and the Chromecast display should match the preview in the lower right.

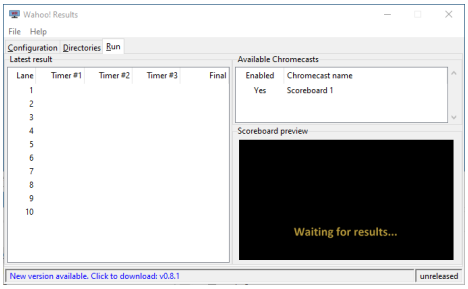

Fig. 5: Run tab

2.9 Go!

You should be all set…

As new race results are written by the Dolphin software, the results will be detected, and the scoreboard will automatically update with the names and times from the race.

CHAPTER

THREE

CONFIGURATION

This page provides detailed information about how to configure Wahoo! Results. If you just want to get started with a minimal configuration, see the *quickstart page*.

The application is divided into three main tabs:

Configuration
: This tab is used to set basic configuration information as well as adjust the color theme of the scoreboard.

Directories
: This tab allows configuring the directories where start lists and race results will be found.

Run
: This tab is the main tab for monitoring the scoreboard during a meet. It allows choosing which Chromecast devices will be used. It also provides a live view of the scoreboard and detailed information about the most recent race results.

3.1 Configuration tab

The left side of the configuration tab allows customizing the appearance of the scoreboard.

Main font
: This is the font that will be used for the majority of the scoreboard text.

Time font
: This font is used for displaying the swimmers' times. It is recommended that a fixed-width (monospaced) font is used for displaying times to ensure the times (minutes, seconds, and hundredths) line up properly.

Title
: This is a free-form text field that is displayed at the top of the scoreboard. Customize this with the name of the meet, session number, or other information.

Text spacing
: This controls the amount of vertical space between lines of text.

Text colors
: The colors can be customized by clicking on the color swatches and choosing a new color.

Background image
: A background image can be inserted using the "Import…" button. The image should be a 1280x720 PNG image. Once imported, the "image brightness" adjustment can be used to dim the image if it is too bright.

On the right side of the window are various options for controlling how the scoreboard displays times.

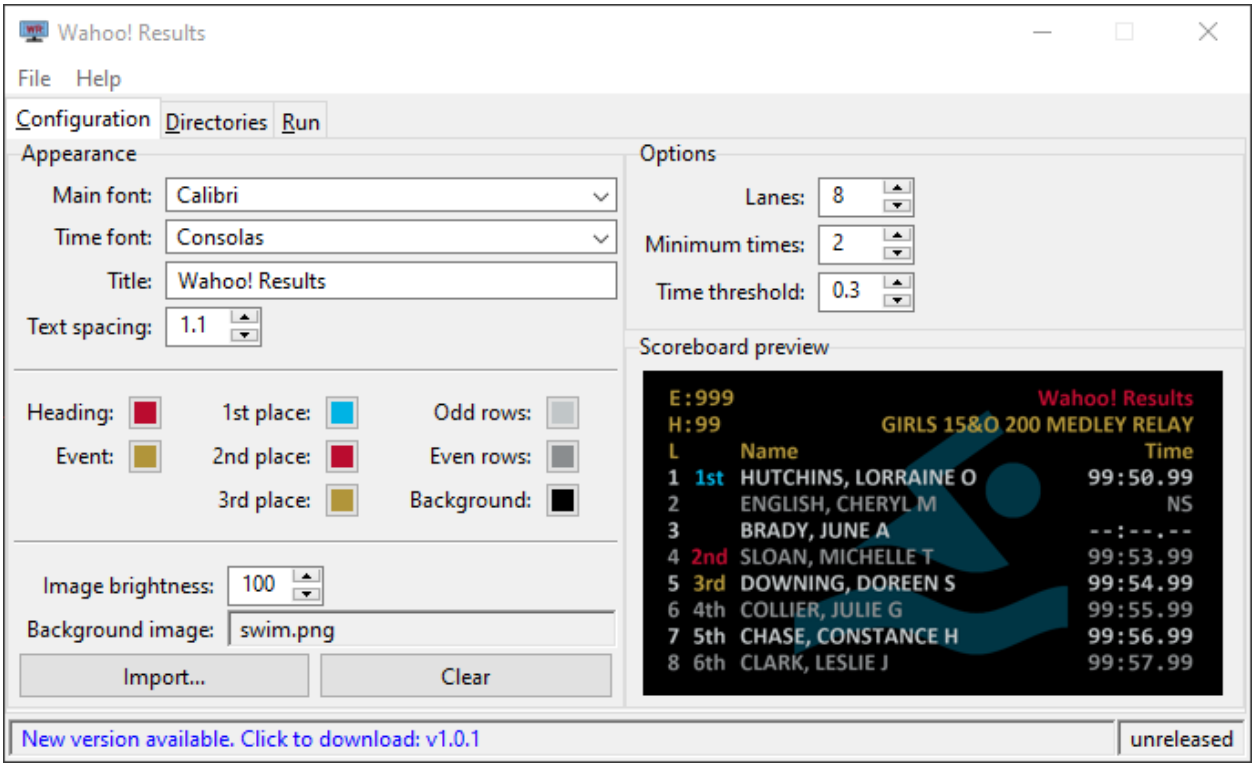

Fig. 1: Configuration tab

Lanes
: This is the number of lanes that will be displayed: (6 – 10).

Minimum times
: This determines the minimum number of watch (Dolphin) times that need to be available to calculate a final time for the lane. Lanes that fail to have at least this many individual times will display "–:–.–" instead of a final time.

Time threshold
: If an individual watch time differs from the calculated final time by more than this threshold (in seconds), the scoreboard will display "–:–.–" instead of the calculated final time.

The "Minimum times" and "Time threshold" settings are designed to prevent potentially unreliable or incorrect times from being shown to spectators.

3.2 Directories tab

The Directories tab configures where the scoreboard will search for start list (`*.ECB`) files and race result (`*.DO4`) files.

The left pane is for the start list files. Use the "Browse…" button to select the directory where the start lists reside. The start list files will be parsed and summarized in the table.

The "Export events to Dolphin…" button will generate a `dolphin_events.csv` file in the start list directory that is suitable for import into the Dolphin software.

The right pane is for race result files. Use the "Browse…" button to select the directory where the race result files will be written by the Dolphin software. Any race result files that are found will be displayed in the table, ordered by their timestamp.

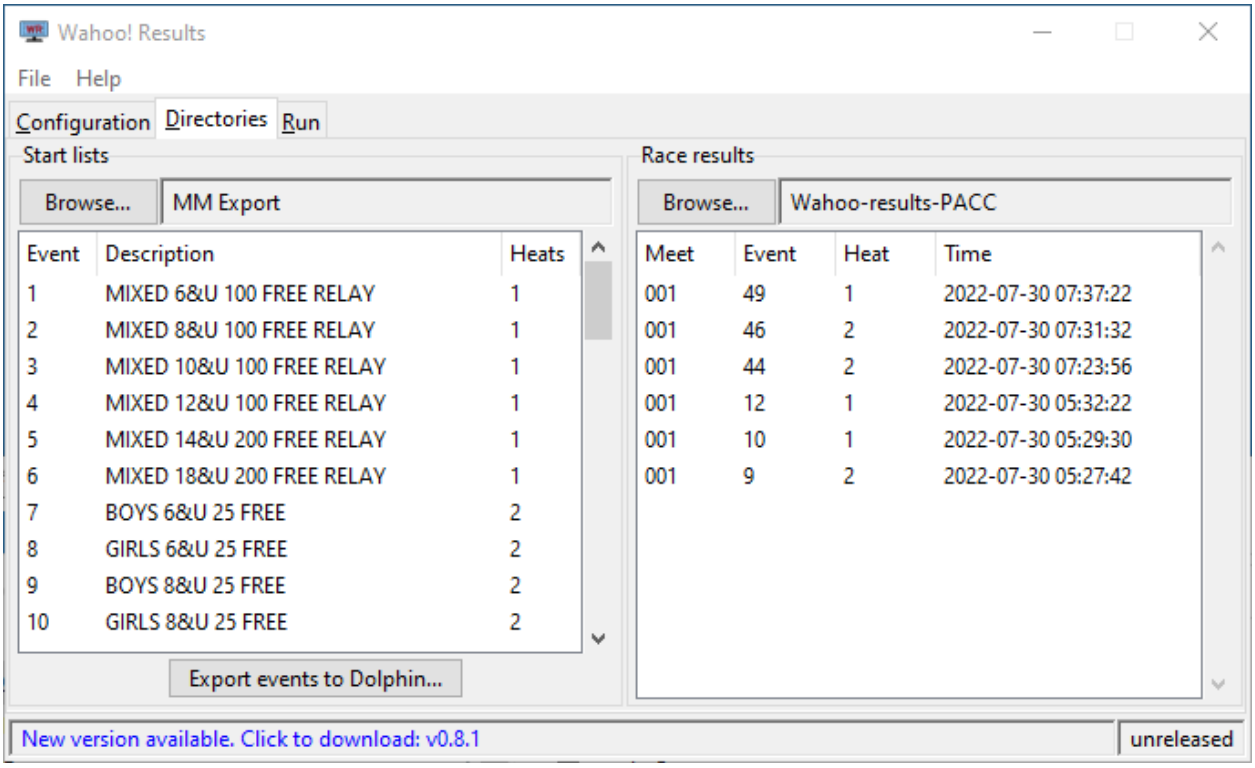

Fig. 2: Directories tab

3.3 Run tab

The Run tab shows live results as the scoreboard is updated.

On the left is a table showing the individual watch times and calculated final time for each lane.

On the right the Chromecast selector that shows a list of all Chromecasts that have been discovered on the network. Clicking on a row toggles whether the scoreboard will send results to that Chromecast (enabled).

At the bottom is a preview of the current scoreboard. This image is a copy of what is currently being sent to the enabled Chromecast devices.

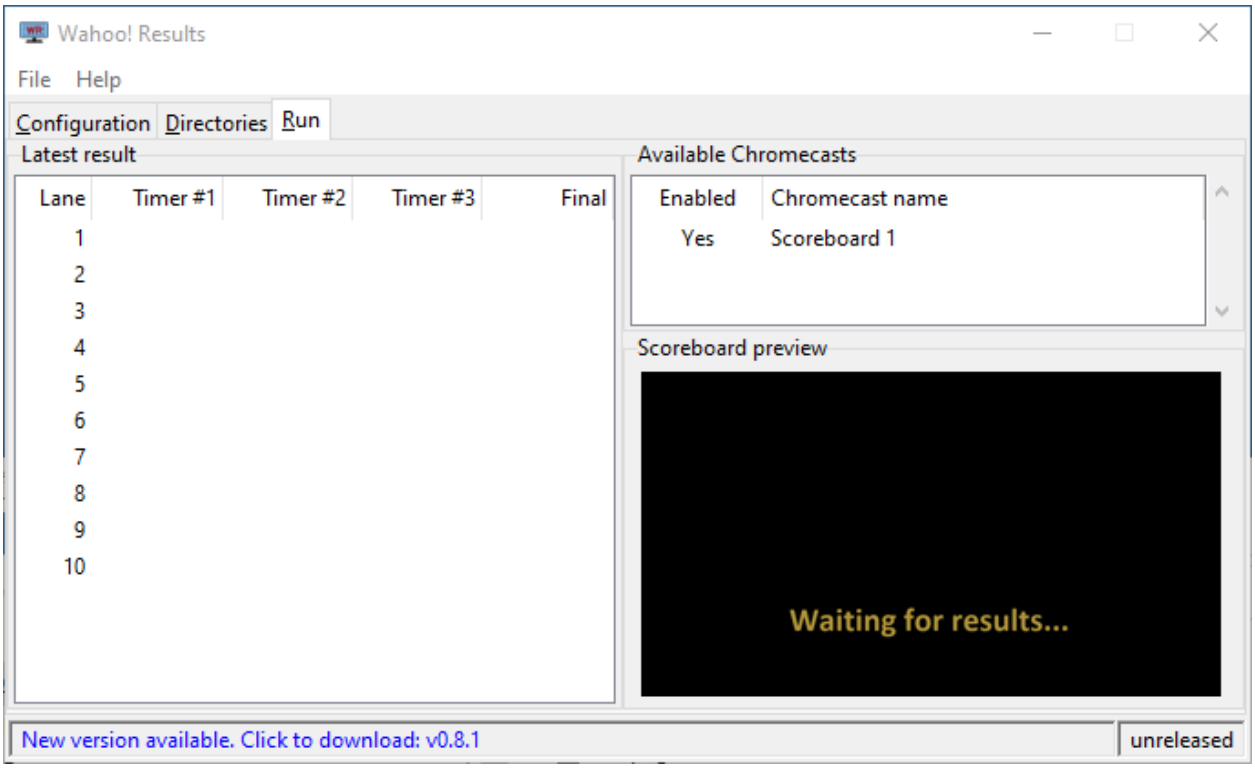
Wahoo! Results
File
Help
Configuration
Directories
Run
Latest result
Lane
Timer #1
Timer #2
Timer #3
Final
1
2
3
4
5
6
7
8
9
10
Available Chromecasts
Enabled
Chromecast name
Yes
Scoreboard 1
Scoreboard preview
Waiting for results...
New version available. Click to download: v0.8.1
unreleased

Fig. 3: Run tab

CHAPTER

FOUR

CHROMECAST COMPATIBILITY

Google has made several different versions of it's Chromecast line of devices. The table below summarizes their support status in Wahoo! Results.

Chromecast device	Compatibility
Fig. 1: First generation[Page 12, 1]	Working
Fig. 2: Second generation[2]	Untested, but should work
Fig. 3: Third generation[3]	Working
Fig. 4: Chromecast w/ Google TV[Page 12, 4]	Configuration required (*see below*)

[1] Image attribution: © Raimond Spekking / CC BY-SA 4.0
[2] Image attribution: © Y2kcrazyjoker4 / CC BY-SA 4.0
[3] Image attribution: © Qurren / CC BY-SA 4.0
[4] Image attribution: © Y2kcrazyjoker4 / CC BY-SA 4.0

4.1 Required configuration changes

Chromecast w/ Google TV

In their default configuration, the Chromecast w/ Google TV devices will timeout after 10 minutes and return to "ambient mode." To prevent this, a few settings must be changed:

1. Disable power saving
   - Go to Settings (icon) > System > Power & Energy
   - Set "Turn off display" to "Never"
2. Enable "developer mode"
   - Go to Settings (icon) > System > About
   - Scroll down to "Android TV OS Build" and repeatedly click on it until you get the message "You are now a developer"
3. Enable "Stay awake"
   - Go to Settings (icon) > System > Developer options
   - Enable "Stay awake"

CHAPTER

FIVE

FAQ/TROUBLESHOOTING

Having problems?

I'm not getting any results.
The scoreboard displays race results when a new `DO4` file appears in the configured log directory.

1. Ensure the Dolphin software is *configured to generate* `DO4` files in addition to any other type of log file you may be using.
2. Ensure Wahoo! Results is configured to *watch the correct log directory*.

I get results, but none of the swimmer's names are displayed.
The scoreboard is not able to find a corresponding start list for the event/heat.

1. Ensure the Event and Heat number of the race are displayed correctly.
2. Ensure Wahoo! Results is looking for the *start lists in the correct directory*.

The event and heat number are wrong.
The event and heat number are read from the `DO4` result file. Ensure the Dolphin software displays the correct event and heat number for each race.

My Chromecast devices aren't being discovered.
When the application starts, it can take several seconds to discover the Chromecasts on the local network. If your device still doesn't appear after a minute or two, it may not be discoverable due to your facility's network configuration.

One way to troubleshoot further is to see if you can cast a Google Chrome web browser tab to the device. If you are unable to cast from Chrome, it is unlikely that Wahoo! Results is going to be able to find the device.

I've selected the Chromecast(s), but no image is being sent.
Make sure that Wahoo! Results is not being blocked by Windows Firewall. The Chromecast protocol works by sending a web URL to the chromecast device, then the device fetches the actual media from that address. This means that Wahoo! Results runs an embedded web server that server must be accessible to the chromecast devices.

The Chromecast screen turns off or goes back to "ambient" (slideshow) mode periodically.
You're probably using a Chromecast w/ Google TV… Those devices need some *configuration changes* to work well with Wahoo! Results.

Question still not answered? Feel free to ask on GitHub.

Wahoo! Results is a free swimming scoreboard that you can use to display race results at your meets. It combines start list data from your meet management software (e.g., HyTek Meet Manager or SwimTopia Meet Maestro) with data files from a Colorado Dolphin wireless timing system to produce an attractive scoreboard that keeps swimmers, coaches, and spectators informed of race results in real-time.

The scoreboard is transmitted to Chromecast devices, allowing the results to be available on many displays at your facility.

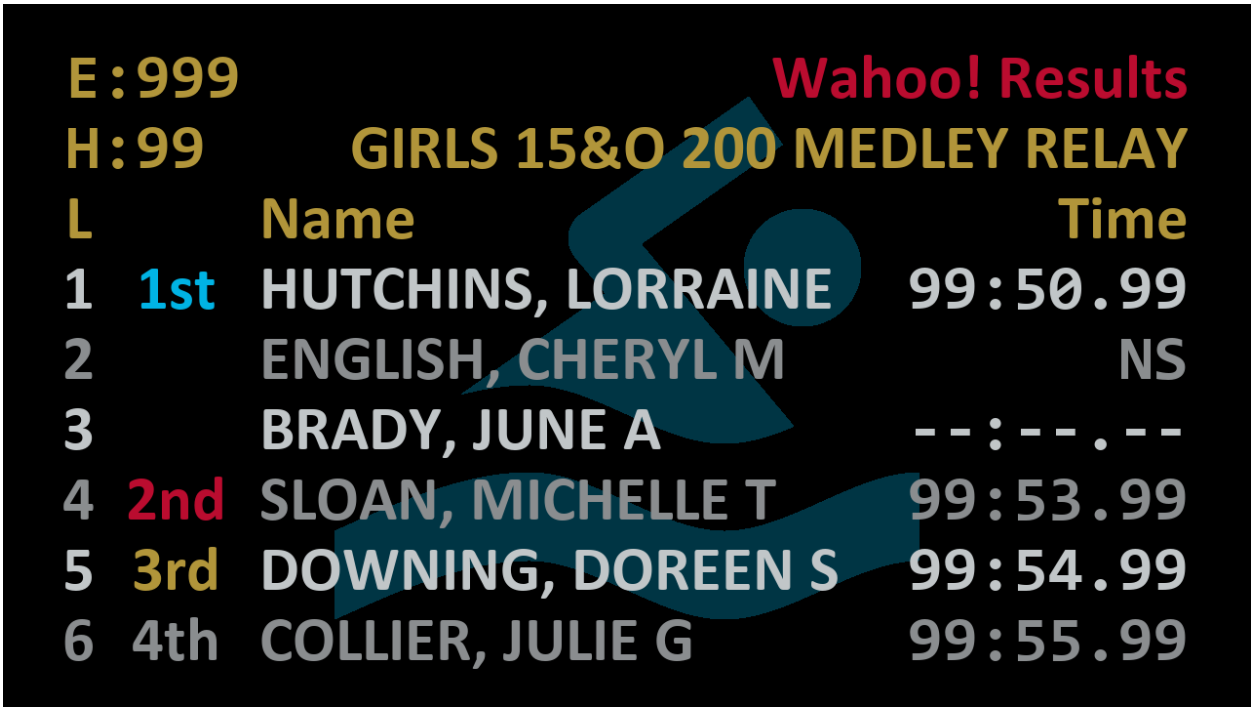

Fig. 1: Example scoreboard

In a hurry? *Try out the quickstart*

CHAPTER

SIX

FEATURES

The Wahoo! Results scoreboard is customizable to meet the needs of your swim team.

- Configurable number of lanes (6 - 10)
- Use custom text fonts, sizes, and colors plus a background image or solid color to fit your team's theme
- Final times are calculated based on multiple Dolphin watches
- Results are transmitted to your Google Chromecast devices

CHAPTER

SEVEN

REQUIREMENTS

- HyTek Meet Manager, SwimTopia Meet Maestro, or other meet management software that can generate scoreboard "CTS start list" files
- Colorado Dolphin wireless timing system
- Windows 10/11 PC to run Wahoo! Results (It can be shared with either of the above.)
- One or more Google Chromecast devices

CHAPTER

EIGHT

CONTRIBUTING

If you are interested in contributing, check out the project's repository on GitHub:

- View the latest releases
- Ask questions
- File bug reports
- Download the source code
- Contribute enhancements

CHAPTER

NINE

LICENSE

Wahoo! Results is free, open-source software that you can download and use. The software is licensed under the GNU Affero General Public License, version 3.