

# SCOREKEEPER REFERENCE

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# Disclaimer

## Disclaimer

### WARNING

#### WARNING

Robot can be dangerous. By using the Field Management System (FMS) Software, you understand that in addition to the safety mechanisms built into the software, you, the operator, play a critical part in making sure that the environment around you is safe before enabling robots. You should only enable robots (use the "Match Start" button) when the robots are in a contained area and segregated from humans, who may be injured due to the robot's motion. If you disagree, or are not willing to use the software under these conditions, you should not proceed.

# Scorekeeper Step-by-Step

# Scorekeeper Reference

## Overview

### Purpose

The purpose of this "Scorekeepers Reference" section (including the step-by-step) is to give FRC Scorekeeping volunteers a handy reference guide and materials to supplement the more detailed information that can be found in the full User's Guide.

It may be of help to Off-Season events, but is designed for official in-season events.

"Days" designed are assuming a regional schedule (typical regional) and may not apply to a condensed (district) schedule.

### Overview

The Field Management System (FMS) is the electronics core of a *FIRST* Robotics Competition (FRC) playing field and encompasses both hardware and software components. The software package is used to control all the field electronics (LED Displays, Station Control Cabinets, E-stops, enable/disable of the Robots, network security, etc.) and is used to manage the event by creating match schedules, scoring the matches in real-time, and posting information to the Audience screen. The Scorekeeper, with direction and guidance from the FTA, manages the FMS during an FRC event. This document IS NOT an exhaustive tome of all knowledge regarding Scorekeeper best practices, helpful life lessons, or anything you should take with you if you're ever trapped on a deserted island. Instead, this document is intended to provide some guidance and helpful reminders for completing your role as a Scorekeeper.

**THANK YOU** very much from all of us at FIRST for volunteering your time and unique skills to guide our events!

## Setup (Day 0)

Prepare the field and arena for play

### Setup

For a three-day Regional event, setup is done on the day preceding the Practice matches; Regional Directors can choose to also allow pit load-in during setup, but this does not affect setup activities. For a two-day District event, setup may happen on the same day as Practice matches and robot Inspection. For the purposes of this document, setup is just considered the “setup activity” and is not specific to event type.

1. Check in with your FTA and find out if the FMS System has been setup.
2. Launch the FMS Event Manager software (if not already loaded)
3. Check to determine if the Internet Connection provided by the venue for FMS has an overlapping IP range.
  - Launch the FMS Event Manager software, and click on the “Settings” button at the top of the application.
  - The “Network Config” tab in the resulting panel should be automatically selected. If not, please select this tab.
  - Click on the button marked, “Get Router Configuration” under the “Router” heading.
    - If the “Internet IP” is marked as “unknown”, click the button again.
    - If the “Internet IP” shows up with a RED background and an IP address that starts with 10.xx.yy.zz, contact your FTA and let them know the Internet IP overlaps.
      - The FTA will likely place a router between the Venue Internet and the Scorpion. Once this is done, power cycling the Cisco Router within the Scorpion will speed up detection of the new network.
  - If the problem persists, the FTA should contact HQ Support.
  - If the venue requires a specific static IP address, uncheck “Use Venue DHCP” and enter the details in the “Venue Internet” section. This should only be done with your FTA.
4. Once the FMS System is setup, contact HQ support via Slack to determine if there are any FMS updates or maintenance that needs to be done for your event. It may not be possible for you to

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perform a successful Data Download without authorization from HQ support. Do not create the event database until HQ support ok's you to complete this action.

- If an update was required, you will also need to update the Audience Display toughbook using a USB drive (ask the FTA for one).
  - You can find a copy of the Audience Display installer in the following location
    - C:\Program Files\FIRST\AudienceDisplayInstaller
5. Load the Audience Display software on the Audience Display Toughbook ONLY if the event database has been created. Without an event database, the Audience Display may not load correctly.
- The Audience Display has two hotkey combinations to load its configuration panel.
    - CTRL-SHIFT-F12
    - CTRL-SHIFT-C
  - Use the hotkey CTRL-SHIFT-1 to move and center the audience display onto the primary monitor, or if using HDMI output use CTRL-SHIFT-2 to move and center the audience display to the secondary monitor.
  - A/V might want to run their own Remote Audience Screen – if so, they can find the software .MSI installer under the following location on the server (reminder – if A/V has a previous copy of the Remote Audience Screen installer, and the software has updated, they will need to get a new copy of the installer after the update):
    - C:\Program Files\FIRST\AudienceDisplayInstaller
6. Within the FMS Event Manager software, click the “Field Test” button at the top of the application and ensure all of the hardware is online.
- All component LEDs should be Green – you may need to click “Refresh Indicators” to get updated information. Some update via refresh, some only make you think they do.
    - Any elements under “Field Hardware” that remain Red may need HQ Support to help troubleshoot.
    - The FTA should help troubleshoot all components of the Field.
7. Run Match Test and confirm that all field components operate correctly. This process should be coordinated with the FTA
- You cannot access the Match Test area (the button will not become active) until the Data Download step (Step 1) has been completed in the Event Wizard, an event is selected (Step 2), and the database has been created. Contact HQ support for assistance if this has not been completed yet.
8. Coordinate with the FTA and A/V crew to ensure that all game sounds play correctly. You can use the “Test Sound” buttons within the Audience Display configuration panel to play test



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sounds, or use the continuous sound player in the audience screen's Jump Menu (right-click the Audience Display icon in the task bar).

9. Verify that the printer is working correctly.
10. Set up event by using the "Event Wizard" at the top of the FMS Event Manager software. Check with Event Registration and make any necessary changes (add/delete) to the list of participating teams. Verify with the FTA before making any changes.
11. Generate Practice Match schedules and activate the Practice schedule (Steps 3 through 6 in the Event Wizard) and print out sufficient copies to distribute to teams (from the "Reports" button at the top of the application). In some venues, the Pit Admin may only need a single copy of the schedule and they'll go and make copies. Work with the Event Manager and the FTA to ensure that the Practice Match schedule works within the overall timeframe of the practice portion of the event.
12. Work with the FTA to determine if you need to print the Announcer's Report for practice matches. Often this is not necessary.
13. Work with the FTA to ensure that the WPA key file is transferred to the radio programming kiosk. The WPA key file can be exported from the "Practice Team Selection" step (Step 3) from the Event Wizard.
14. Ensure the Backup Configuration settings have been set.
  - Select "Settings", click on the "Backup Config" tab, and click "Browse" to set a backup location.
  - This MUST be on a thumbdrive or other external storage.
15. For events that move directly from Setup to Practice, go on to Practice. For all others, determine when you will be leaving for the evening.
  - When you leave for the evening, please put the field lighting into "Night Mode". You can access "Night Mode" from within the "Settings" page, the button marked "Night Mode" is under the button marked "Awards Mode" in the center top of the application.

## Practice (Day 1)

Prepare the teams for official matches

### Practice

During Practice, teams will come to the Practice Field and run their robots according to a set Practice Schedule. The actual schedule isn't "set in stone", and different event types (Regional vs District) will run Practice differently. It's recommended to run all Practice matches within a Practice schedule to allow the FMS to log match data and robot data so that FTAs and HQ can examine robot and/or field problems through the match logs.

1. Check in with the FTA.
2. Check with HQ Support to determine if any FMS updates or other software updates/maintenance is required.
  - If required, you will also need to update the Audience Display toughbook using a USB drive (ask the FTA for one).
  - You can find a copy of the Audience Display installer in the following location
    - C:\Program Files\FIRST\AudienceDisplayInstaller
3. Launch the FMS Event Manager software (if not already loaded), and also load the Audience Display software (if not already loaded)
  - Use the hotkey CTRL-SHIFT-1 to move and center the audience display onto the primary monitor, or if using HDMI output use CTRL-SHIFT-2 to move and center the audience display to the secondary monitor
  - A/V might want to run a Remote Audience Screen - if so, they can find the software .MSI installer under the following location on the server (reminder if A/V has a previous copy of the Remote Audience Screen installer, and the software has updated, they will need to get a new copy of the installer after the update):
    - C:\Program Files\FIRST\AudienceDisplayInstaller
4. Run a Test Match and confirm all field components operate correctly. This process should be coordinated with the FTA. This may be an abbreviated version of the test conducted during Setup depending on the time available and FTA preferences.

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5. Check with Event Registration and make any necessary changes (add/delete) to the list of participating teams. Regenerate the practice match schedule if there are any additions to the team list (deletions are okay for practice schedules).
6. Ensure the Practice Schedule is Activated in the Event Wizard (Step 6).
7. **Lunch Break Practice Matches**
  - Generate a Qualification Match schedule using steps 7-10 in the Event Wizard. Print out sufficient copies of the Qualification Schedule Report to distribute to teams. In some venues, the Pit Admin may only need a single copy of the schedule and they'll go and make copies. Work with the Event Manager and FTA to ensure that the Qualification Match schedule works within the overall timeframe of the event (start/end times, lunch period, etc.). Then be sure to eat! Volunteers only get a shirt and food for 3 days work!
  - **Return to the Event Manager and re-activate the practice match schedule.** This is necessary in order to continue playing through the Practice schedule.
8. **End of Practice**
  - In the "Settings" view, using the "Backup Config" tab, use the "Force Event Backup" button to force a full event backup for the end of practice matches.
  - Check with the FTA to determine if power will remain on or will be shut off overnight. If power to the field will be turned off, shutdown the Scorpion server with direction from the FTA.

If power will remain on in the venu, put the field lights into Night Mode. Otherwise, shut down.

# Qualification (Day 2)

Determine seeding for Playoff matches

## Qualification

At most all events, Qualification occurs over more than one day; typically qualification runs for one full day and up through lunch on the second day. The Qualification Schedule is generated on the day preceding the beginning of Qualification, if possible. It is extremely important that all teams on the Qualification Schedule are present and will be participating in the Qualification matches. If one or more teams that are appearing on the Qualification Schedule leave the tournament prior to the start of the Qualification matches, the Qualification Schedule should be regenerated to remove the missing team(s). Work with your FTA to ensure all teams participating are present and ready.

1. Check in with the FTA.
2. Check with HQ Support to determine if any FMS updates or other software updates/maintenance is required.
  - If required, you will also need to update the Audience Display toughbook using a USB drive (ask the FTA for one).
  - You can find a copy of the Audience Display installer in the following location
    - C:\Program Files\FIRST\AudienceDisplayInstaller
3. Launch the FMS Event Manager software (if not already loaded), and also load the Audience Display software (if not already loaded).
  1. Use the hotkey CTRL-SHIFT-1 to move and center the audience display onto the primary monitor, or if using HDMI output use CTRL-SHIFT-2 to move and center the audience display to the secondary monitor.
  2. A/V might want to run a Remote Audience Screen if so, they can find the software .MSI installer under the following location on the server (reminder if A/V has a previous copy of the Remote Audience Screen installer, and the software has updated, they will need to get a new copy of the installer after the update):
    - C:\Program Files\FIRST\AudienceDisplayInstaller
4. Run a Test Match and confirm all field components operate correctly. This process should be coordinated with the FTA. This may be an abbreviated version of the test conducted during Setup depending on the time available and FTA preferences.

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5. Make sure the Qualification Schedule is activated within the Event Wizard.
6. Generate and print the Announcer's Report for Qualification Matches.
7. Print the Qualification Match schedule, if not done already
8. It may be necessary to select the first Qual match in the schedule before prestarting the first match. It's not that we don't trust you, but only Santa knows if you're being naughty or nice.
9. Once all robots link to the field, the Field Reset Lights on the Scale/Switches will turn off ONLY if you're in "Set Audience Display." "Set Audience Display" is also required in order for the Field Stack Light to turn Green.
  - Also note that the Vault and Scale Lock-out Bar will affect the Stack Light; it will illuminate the amber LED if either is not "ready."

## 10. End of Qualification Day 1

1. Use the "Settings" button, "Backup Config" tab, "Force Event Backup" button to ensure the event database is backed up.
2. For three-day Regional events only, input Friday Award winners in the Event Wizard. To assign the award, click on the award and click "Assign Award" and complete the pop-up box. Once all awards are announced and entered, click the "Post" checkbox on each one modified and click "Upload Award Assignments" ONLY AWARDS WITH A CHECK MARK WILL BE POSTED ONLINE. Uploading will immediately post the awards to the web API, though there's a 10 minute cache on the website.
  1. During the Awards Ceremony, put the field lights into "Awards Mode."
  2. Check with the FTA to determine if power will remain on or will be shut off overnight. If power to the field will be turned off, shutdown the Scorpion server with direction from the FTA. If powered, put the field lights into "Night Mode."

## 11. End of Qualifications (to Alliance Selection)

1. Use the "Settings" button, "Backup Config" tab, "Force Event Backup" button to ensure the event database is backed up.
2. Print the Qualifications Ranking report for the Announcer as soon as the final qualification match has completed.
3. Use the Alliance Selection (Step 12) in the Event Wizard to set alliances as they are picked. Use the video switcher at the bottom of the screen to select between the "Alliance" and "Available Teams" audience screens during the Alliance Selection ceremony. Try not to roll your eyes too loudly when someone "graciously accepts."
4. Immediately following Alliance Selection process, the playoff schedule must be built VERY QUICKLY so that the Backup Robots report and Playoff Coupon report can be printed out. The Backup Robot report must go to the HEAD REFEREE immediately (so that they can hand it to another Referee or Queue staff to handle backup robot acceptance) and the Playoff Coupon report should be cut up along dotted lines so that the teams will have Timeout and Backup coupons.

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- Build the Playoff Schedule (Event Wizard Step 13). All that needs to be known is the time which Playoff matches will begin, and the number of matches in playoffs is always 21. Matchmaker is not used in Playoff Match Generation.
  - Activate the Playoff Match Schedule (Event Wizard Step 14).
5. Print Backup Robots Report, Playoff Schedules, Backup and Timeout coupons, and initial Announcer reports (only the pages that pertain to the Quarterfinals).
  6. Before you leave for lunch, use the video switcher to either display the Quarterfinal bracket or use the Messages tab to put a lunch message (using the Background view).

## Playoffs (Day 3)

Determine the event champions

### Playoffs

For 2017, Playoffs are best-of-3 matchups in three phases: Quarterfinals, Semifinals, and Finals. Each phase will play according to the bracket designed for each. After each phase new schedules (for queue staff) and Announcer report (only those pages pertaining to the next phase of competition) should be printed. Only print the report if the announcer needs it!

1. Announcer Reports (pertaining to the specific matches) should be printed at the beginning of each phase.
2. Limited numbers of schedules should be reprinted for queue staff and essential personnel at the beginning of each phase.
3. Bracket Reports should be printed for the Head Referee and Game Announcer at the beginning of each phase.
4. Field Timeouts should be performed (using the Timeout button) in the following instances:
  - Immediately Preceding Back-to-Back matches due to Tiebreaker Matches (all finals and overtime matches are back-to-back, and thus they all have field timeouts)
  - Immediately Preceding any Finals matches

Stay calm, stay hydrated, enjoy the matches, don't get caught up in the hype. Remember, you're not a Referee. Let them do the heavy lifting, only support their actions, don't try to direct them.

## Awards

Reward teams for their season of effort

### Awards

If you're attending a District event, awards are straightforward using the event wizard step, entering the awards as they are called out. If you're at a Regional event, you've got some more work to do. Regional events require you to calculate Wildcards for your event.

- *[Regional Events Only]* Work with your Event Manager and FTA to get a copy of the awards before they are announced on the field during the Awards Ceremony.
- *[Regional Events Only]* Enter awards in the event wizard, being careful to prevent wandering eyes from accessing the awards. **DO NOT post the awards nor submit them** awards that are submitted are immediately posted online and are available via the FIRST API and online.
- *[Regional Events Only]* Once all awards are entered move on to the Wildcard step and ensure that there are four (4) green checkmarks. Once verified, click "Calculate Wildcards" to allow the system to calculate wildcards.
- *[Regional Events Only]* In the Reports area, generate the Wildcards Script via the "Wildcards Script" under "Other Event Reports" and print it out. Hand this to the Emcee with our regards.
- **[ALL EVENTS]** Once awards are complete, select the POST boxes next to each award and click "Upload Award Assignments."



# Archive and Upload

Tell HQ you're done!

## Finish Event

This is the very last step you should perform on the server, and it's the one step your HQ support person has probably been dying for you to do for the last half hour. Before doing this ensure your Awards are completed, and contact your HQ support person and ask if there's any other tasks to perform before completing the final Event Upload using the Event Wizard. Once you complete the upload step, it's a pain to go back and do anything else as this completes and closes out the event.

1. If, and only if, the support person gives you the go-ahead, perform the "Upload Event Data" step by clicking the button.
2. ***Hold on when it says it's done!!*** The HQ Support team needs to verify that they received the upload. Support may need to remote into the system to perform a backup manually if the operation fails, so please don't run away and leave.
3. Once they're done, and have verified that everything is good, you can close all applications and log off and shut down the Scorpion server.
4. Assist with Field Pack-out, if possible.

## Thank YOU!

**THANK YOU AGAIN FOR VOLUNTEERING YOUR TIME WITH US!**