

# EVENT MANAGER (FMS)

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# Disclaimer

# Disclaimer

## 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.

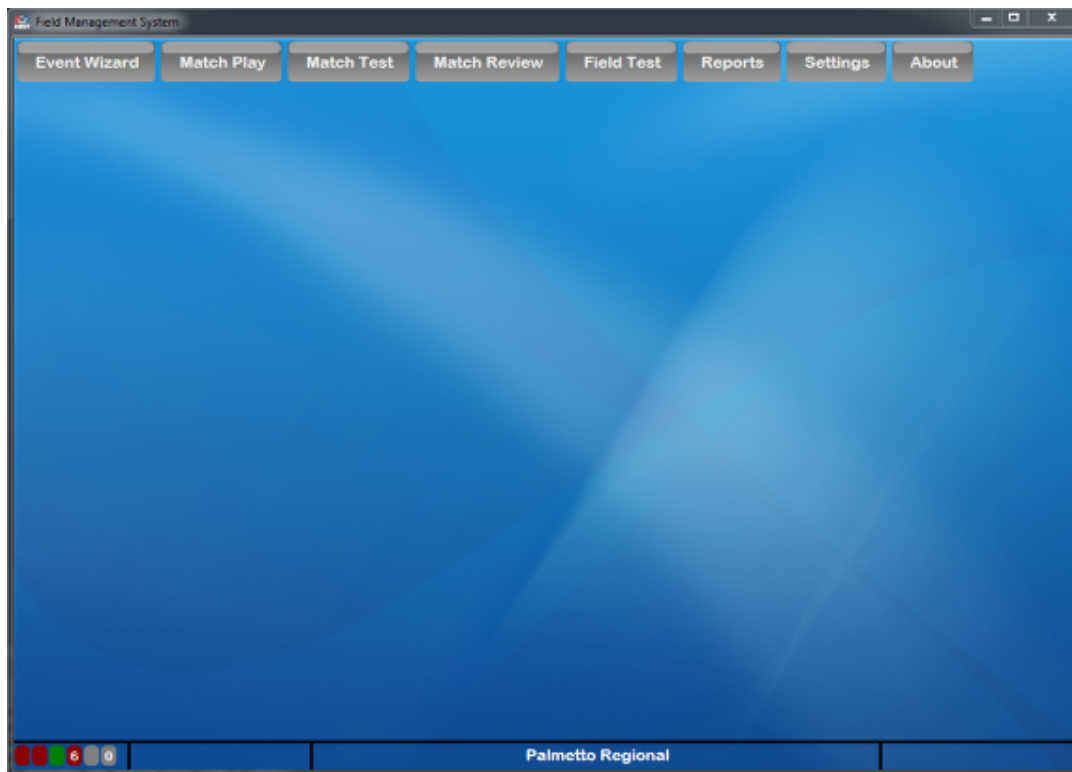
# Navigation and Indicators

## Event Manager (FMS)

# Tab Navigation

Navigating between the portions of the event manager

## Opening View



The above shows the Event Manager interface when opened for the first time. The different tools are accessed via the tabs along the top of the window. These tools are:

- [Event Wizard](#) - the main interface for setting up the entire tournament. Creating match schedules, input award winners, generating WPA keys, etc. are all done from this interface
- [Match Play](#) - the main interface for starting and stopping matches, managing the score, and controlling the information posted to the Audience screen
- [Match Test](#) - the tool used to test the playing field in order to verify proper functionality of all electronics and scoring devices



# Event Manager (FMS)

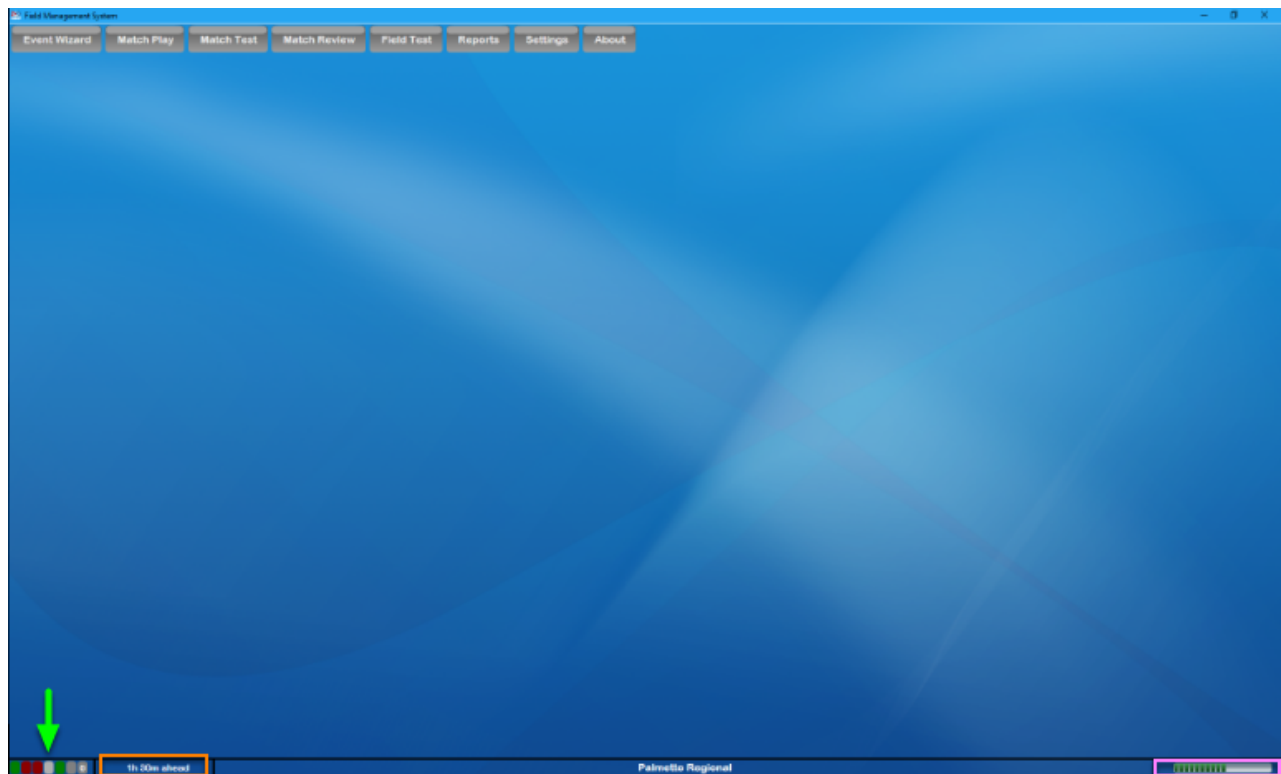
- [\*Match Review\*](#) - review or modify the score from a previous match
- [\*Field Test\*](#) - perform basic initial functionality tests of the playing field (not available in Off-Season version)
- [\*Reports\*](#) - generating printable reports such as match schedules, team lists, or printouts for Announcers are all handled through this interface
- [\*Settings\*](#) - Global settings for the software, as well as Administrative functions
- [\*About\*](#) - shows the current software version number, allows updates, and shows the EULA

Further details on each function are detailed later in this User Guide.

## Indicators

Indicators around the main window of Event Manager

### Lower bar Indicators



[Green Arrow] The bubble indicators relay quick status information about major hardware and software status information on the field. *The bubbles are not displayed in the Off-Season version.* They are:

- SCC Status
- Scale Switch Status (Game Specific)
- Vault Status (Game Specific)
- PLC Heartbeat (flashes at 1Hz)
- Referee screens (If red, the number of screens missing are displayed)

## Event Manager (FMS)

- Backup Status
- Sync Status (if red, number of outstanding tasks)

Most items will have a "hover text" to explain the status shown.

[Orange Box] The orange box represents the "ahead behind" timer. Once a match is started, the time difference between when the match was started, and when it was scheduled will be displayed here.

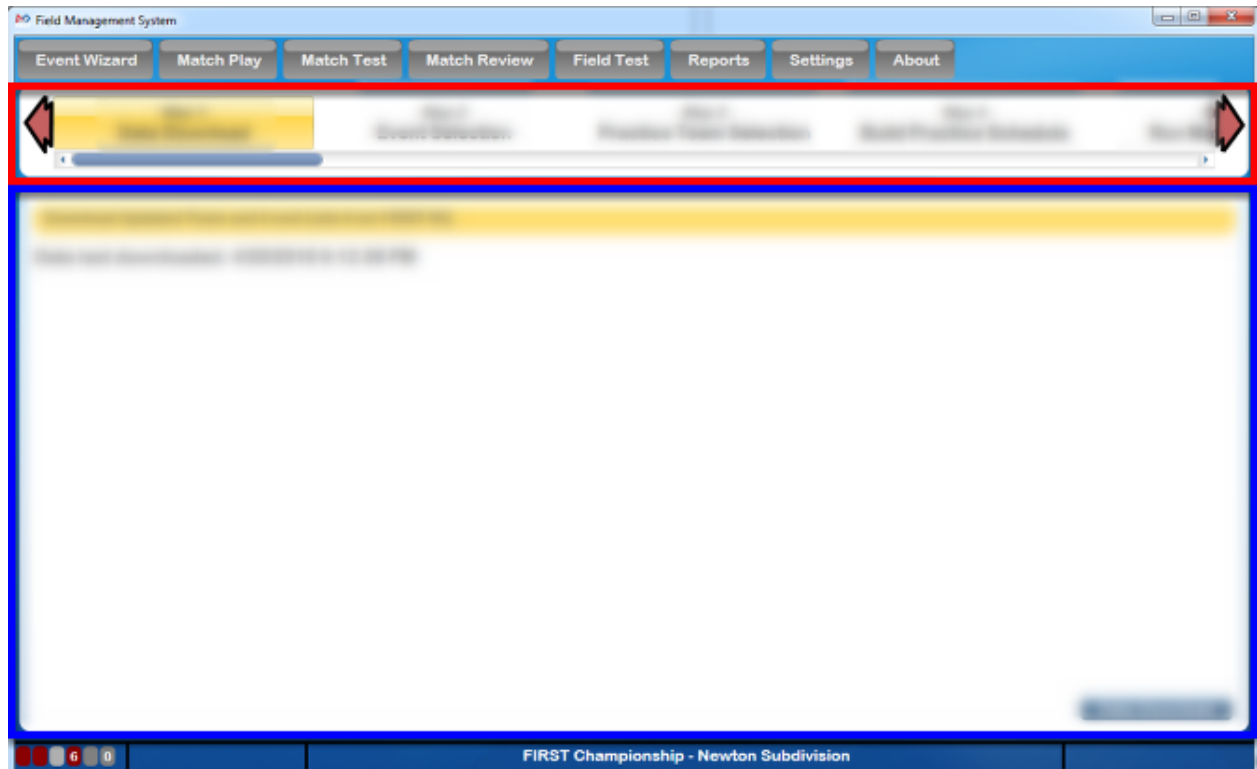
[Middle Box] The event name is displayed in the middle of the bottom bar.

[Pink Box] When a task that requires additional time is running (such as schedule generation) the "busy bar" will show in this location (example shown).

# Event Wizard

# Navigation

## Event Wizard Navigation



The Event Wizard is a tool to guide the Scorekeeper through the entire multi-day tournament. It is organized such that the user can configure a portion of the tournament, the Practice schedule for example, then go to Match Play and play through all those matches. Once finished, the user returns to the Event Wizard to configure the next part of the tournament. This process continues until the entire wizard is complete.

Each step of the Event Wizard is shown in this chapter along with a detailed description of the functionality found on each page. For some elements, like activating a schedule, the process is the same for all phases of the tournament. In those cases, the steps are not shown multiple times, but rather noted that it applies multiple times and only listed once.

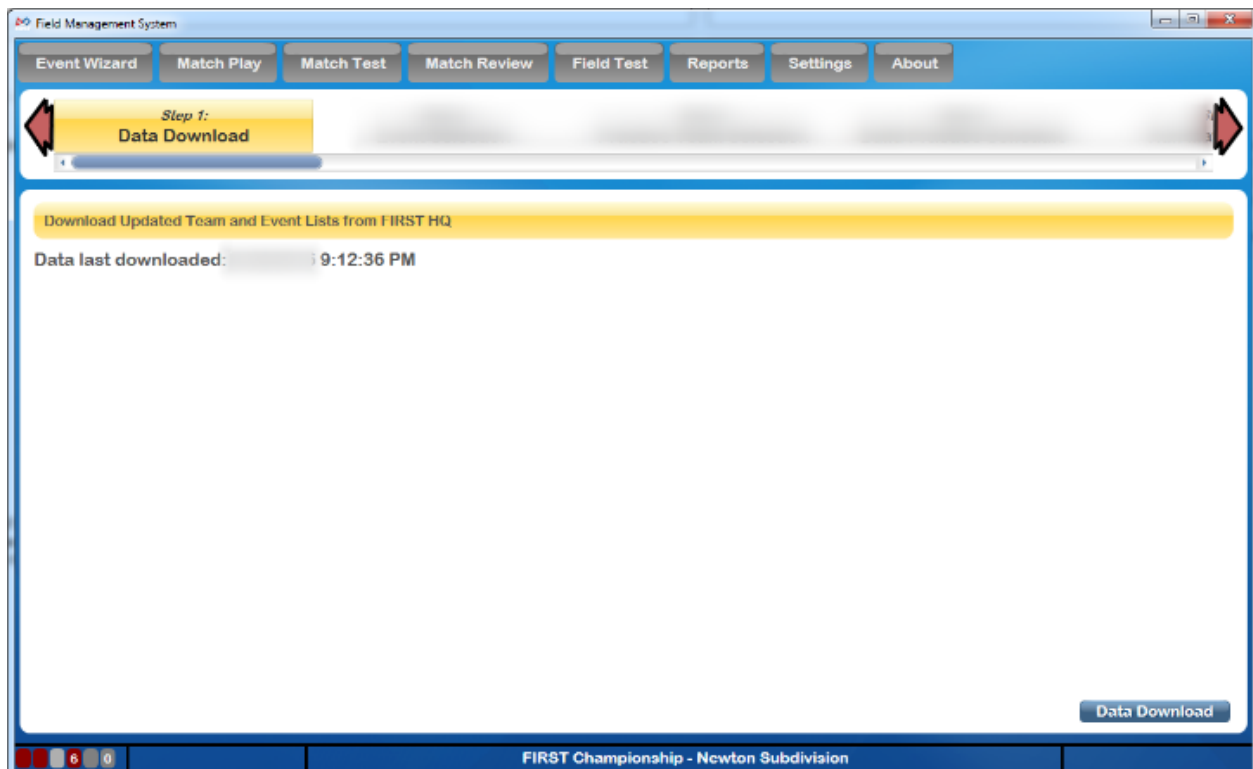
[*Red* - Navigation] Using the top portion of the screen, navigate between steps of the wizard by clicking the arrows on either side or directly on the step itself. Use the scroll bar to quickly zoom the view of the steps from one side to the other.

## Event Manager (FMS)

[*Blue - Content*] The lower portion of the screen will change to display the content based on the selection from the navigation portion of the display.

# Data Download

## Data Download



The Data Download step of the Event Wizard is used to download the complete event list of all official FIRST Robotics Competition Events and Teams. It will also ensure that the data is up-to-date with any changes the team may have made to their [Team Registration](#) profile.

In 2018, this also downloads all available Team Avatars.

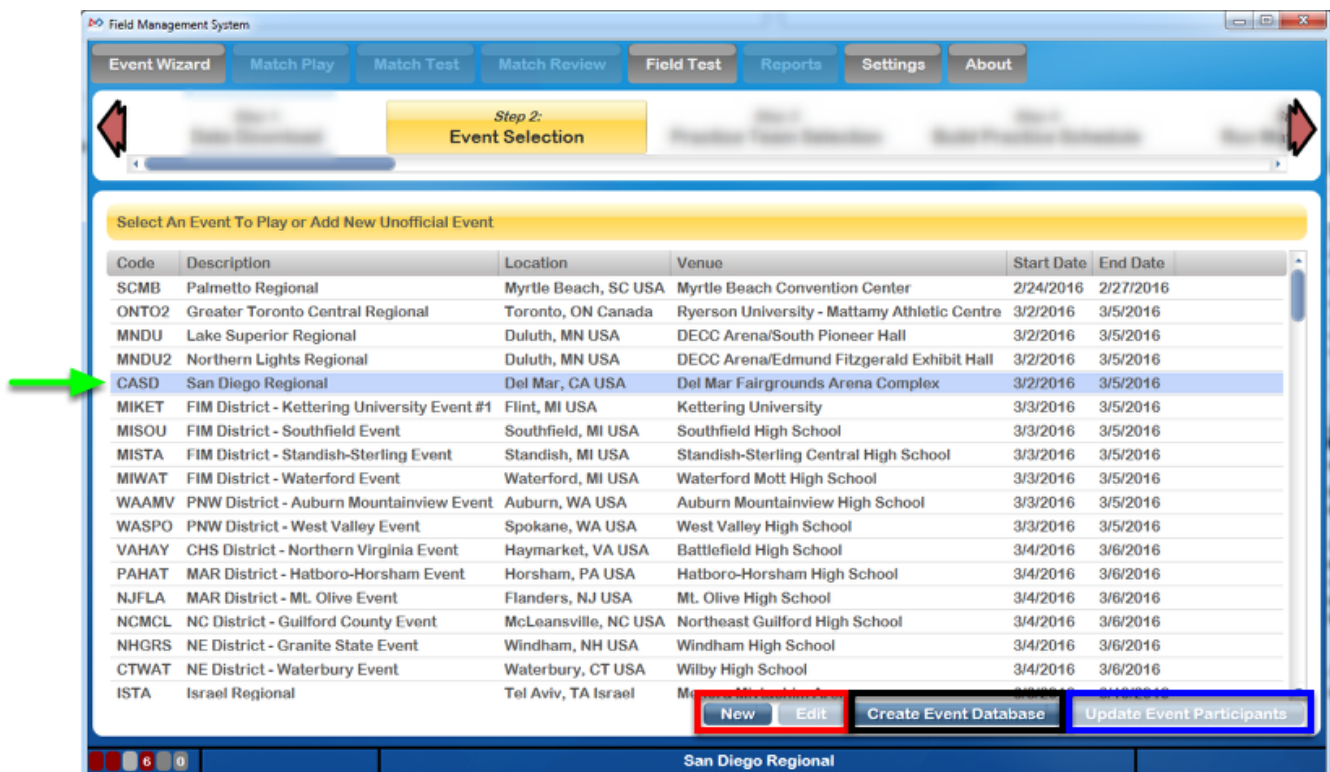
In FMS Off-Season, this step does not download anything, the software installation includes the complete registered team list from the current FRC season.

# Event Manager (FMS)

## Event Selection

Get your event started...

### Selecting a Traditional Event



The Event Selection step of the Event Wizard displays the complete list of downloaded events from Data Download. On this step, select the event to be played. In this case, the San Diego Regional event is selected (highlighted blue background on the row).

[Green Arrow] The currently selected event, if there is one, will be shown with a highlighted row background

[Red] The "new" and "edit" buttons can be used to manipulate Off-Season events

[Black] Create a database for a selected event (see below)



# Event Manager (FMS)

[Blue] Update event participants records on an existing event database. This is used for situations where the event database was created before additional registration changes were made.

## Creating an Off-Season Event (Optional)

The screenshot shows the 'Field Management System' interface. At the top, there are tabs: Event Wizard, Match Play, Match Test, Match Review, Field Test, Reports, Settings, and About. Below these is a progress bar with 'Step 2: Event Selection' highlighted. The main area is titled 'Select An Event To Play or Add New Uno'. On the left is a list of events with columns 'Code' and 'Description'. The 'CASD San Diego Regional' event is selected. In the center is a form for creating a new event. The form fields are: Event Code (with a red arrow pointing to it), Event Type (set to 'Off-Season'), Description, Location (City, State/Prov, Country), Venue, Start Date (with a blue arrow pointing to it), End Date, Alliance Selection (set to 'ThreeTeamWithBackups'), and Alliance Count (set to 'EightAlliance'). At the bottom of the form are 'Save' and 'Cancel' buttons. Below the form is a table with columns 'Start Date' and 'End Date', showing dates from 2/24/2016 to 3/10/2016. At the bottom of the screen are buttons: 'New', 'Edit', 'Create Event Database', and 'Update Event Participants'. The status bar at the very bottom says 'San Diego Regional'.

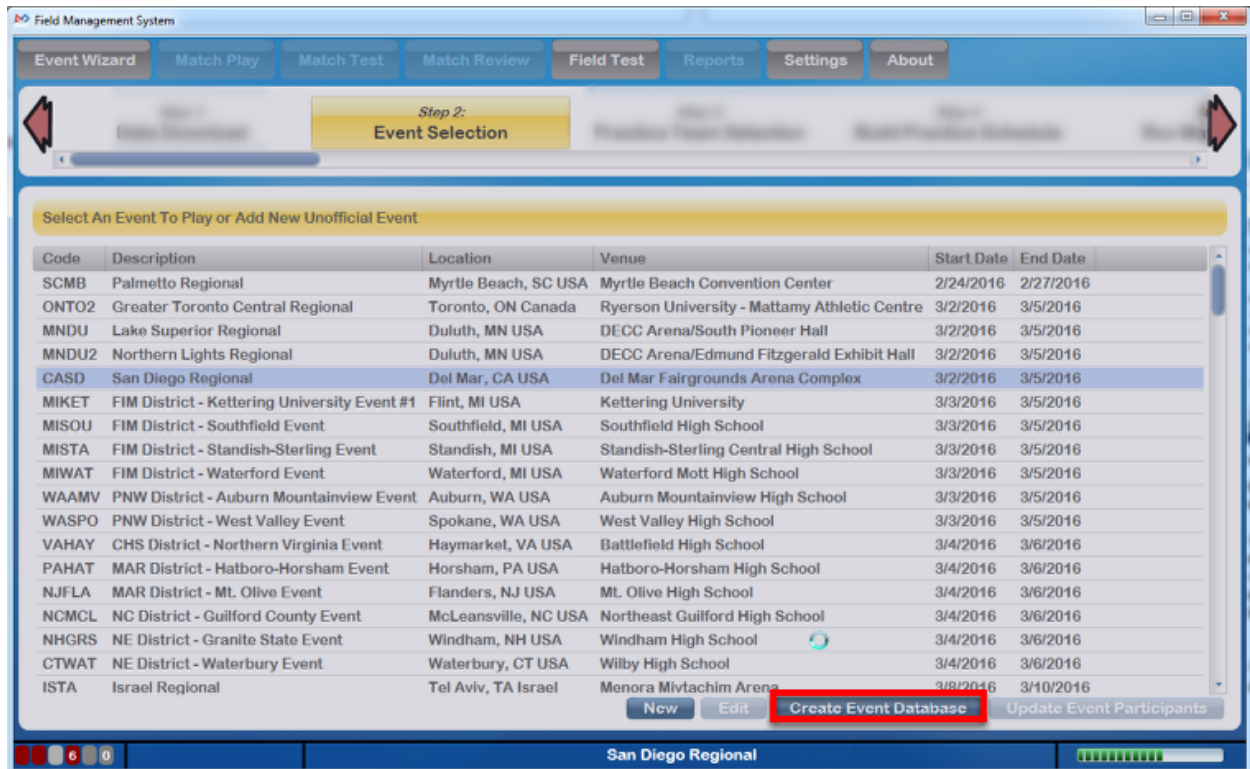
For FMS Off-Season, clicking “New” (in the red box above) will allow the addition of an unofficial (Off-Season) event. Only events added manually can be edited, those downloaded from *FIRST* are protected from edits.

The Event Code (red arrow) must be unique from any other events on the machine- regardless of whether they are official or not. Additionally, it's important to make sure the inclusive start and end dates (blue arrow) are marked properly, as they're used to validate schedules and could create problems in later steps if marked inaccurately.

The alliance count and playoff style can also be edited on this screen, but only before the playoff tournament process has begun (i.e. until Alliance Selection).

# Event Manager (FMS)

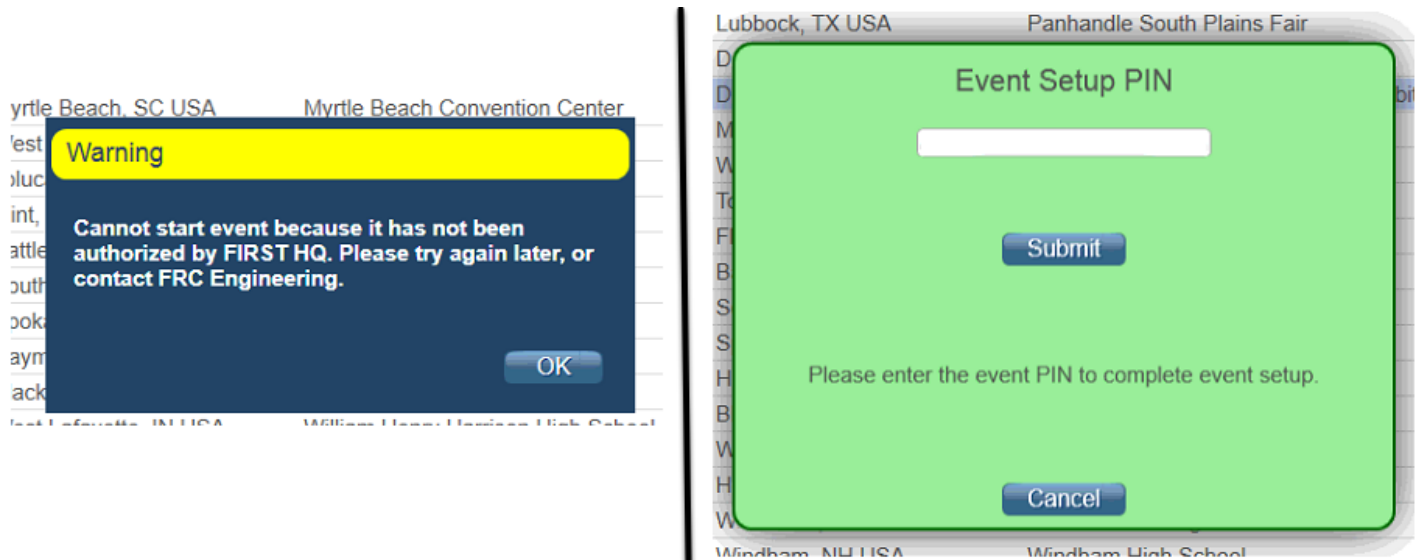
## Creating Event Database



Once the target event has either been selected (traditional event) or created (off-season event) it will need a database to store its results. To initiate this process, click the "Create Event Database" button (shown here in the red box). For an Off-Season event, the Database is automatically created. For a tradition event, an additional window(s) are displayed, as described in the next step.

# Event Manager (FMS)

## Event PINs

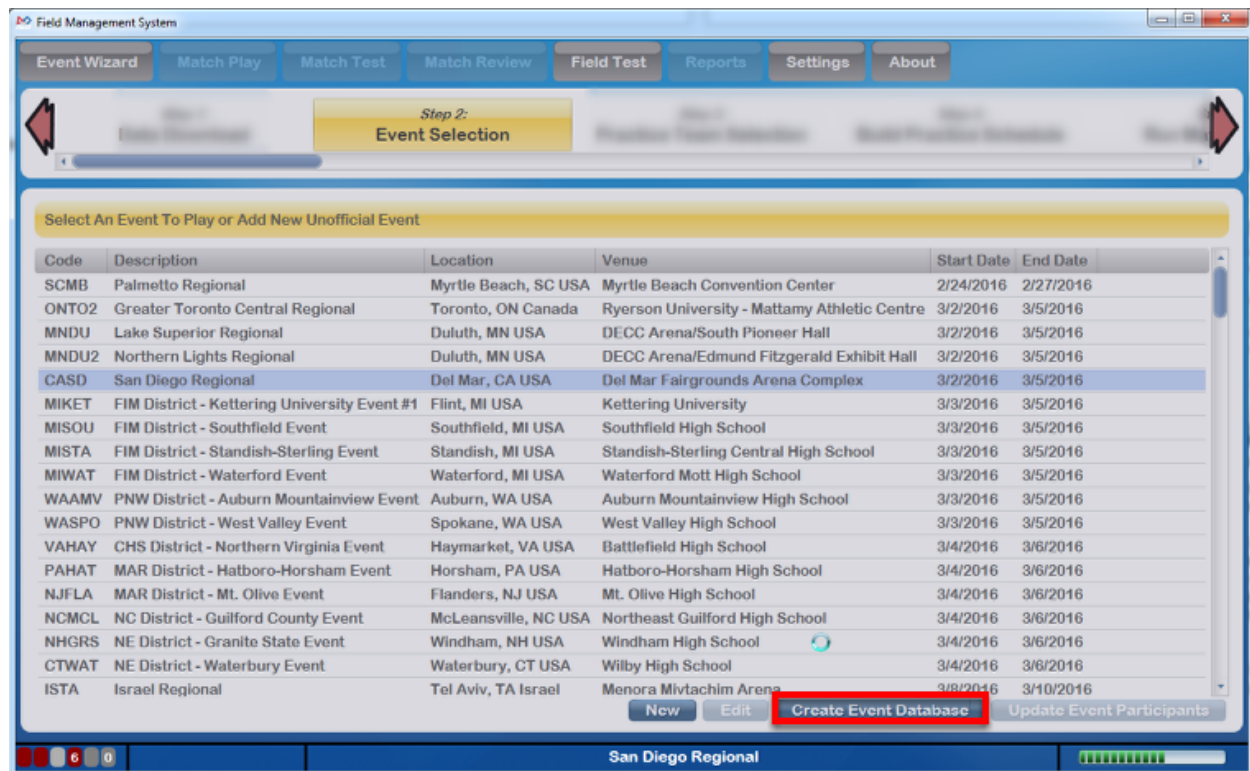


For traditional events and Off-Season events that are Syncing data with FIRST, clicking "Create Event Database" will cause one of two windows to appear. The window on the left will appear if FIRST HQ has not yet "released" the event to begin. As the instructions imply, you'll need to wait until the event is released to proceed. Contact your event support contact if you have questions.

Once an event has been released (and data download completed), clicking "Create Event Database" will trigger the window on the right. On this screen, the FTA will need to enter the PIN number they were provided by FIRST. Upon doing so and pressing Submit, the creation process proceeds as described below.

# Event Manager (FMS)

## Event Database Creation in Progress



Once the target event has had the correct PIN entered, the system will create a location to store the event's results and data. This will temporarily disable the screen (as indicated by the working bar on the lower right) as the event database is created. This will populate registration information, template code and more.

Once the process completes, and each time this step is re-opened thereafter, the button will be disabled as the database has already been created.

# Event Manager (FMS)

## Team Selection

Though only displayed here once, this step is the same for both the Practice and Qualification portions of the event.

## View and Add Registrations

The screenshot shows the 'Field Management System' window with the 'Practice Team Selection' step active. The table lists teams with columns for Team #, Team Name, Key Generated, Key Status, Rookie, Location, and Robot Name. A red box highlights the checkboxes in the first column, and a green box highlights the 'Show Teams' and 'Filter Team List' controls at the bottom left.

Team #	Team Name	Key Generated	Key Status	Rookie	Location	Robot Name
<input type="checkbox"/>	1 The Juggernauts	False		1997	Pontiac, Michigan USA	Juggy
<input type="checkbox"/>	4 Team 4 ELEMENT	False		1997	Van Nuys, California USA	
<input type="checkbox"/>	8 Paly Robotics	False		1996	Palo Alto, California USA	Freya
<input type="checkbox"/>	11 MORT	False		1997	Flanders, New Jersey USA	MORT
<input type="checkbox"/>	16 Bomb Squad	False		1996	Mountain Home, Arkansas USA	Black Widow
<input type="checkbox"/>	20 The Rocketeers	False		1992	Clifton Park, New York USA	Scorpio
<input type="checkbox"/>	21 ComBBAT	False		1998	Titusville, Florida USA	Dragoslav
<input type="checkbox"/>	25 Raider Robotix	False		1997	North Brunswick, New Jersey USA	
<input type="checkbox"/>	27 Team RUSH	False		1997	Clarkston, Michigan USA	Gold RUSH
<input type="checkbox"/>	28 Pierson Whalers	False		1996	Sag Harbor, New York USA	Beast from the East
<input type="checkbox"/>	31 Prime Movers	False		1997	Jenks, Oklahoma USA	
<input type="checkbox"/>	33 Killer Bees	False		1996	Auburn Hills, Michigan USA	Buzz 20
<input type="checkbox"/>	34 Rockets	False		1997	Athens, Alabama USA	
<input type="checkbox"/>	41 RoboWarriors	False		1997	Warren, New Jersey USA	
<input type="checkbox"/>	45 TechnoKats Robotics Team	False		1992	Kokomo, Indiana USA	Sir Lance-a-Bot
<input type="checkbox"/>	48 Delphi E.L.I.T.E.	False		1998	Warren, Ohio USA	xtremachen19
<input type="checkbox"/>	51 Wings of Fire	False		1996	Pontiac, Michigan USA	Wings of Fire
<input type="checkbox"/>	56 R.O.B.B.E.	False		1997	Bound Brook, New Jersey USA	R.O.B.B.E.
<input type="checkbox"/>	58 The Riot Crew	False		1996	South Portland, Maine USA	TBD

At the bottom left, there is a 'Show Teams' section with radio buttons for 'All' (selected) and 'Competing Only', and a text box showing '( 62 teams )'. Below this is a 'Filter Team List:' text box. At the bottom right, there are buttons for 'New', 'Edit', 'Clear All Keys', 'Generate Security Keys', and 'Export Keys'.

Team Selection displays the downloaded list of registered FRC teams, with those registered for the event pre-checked. This list should be used to verify all the teams registered are actually present at the venue.

[Red] Checkboxes indicate the registration status of a particular team at a particular event. If the box is checked, the team on that row is set as "competing" for the event. Unchecked teams are not listed as competitors.

## Event Manager (FMS)

[Green] The count of competing teams is shown (number of checked teams) along with the ability to filter the team list. Radio buttons can also be used to switch the view list from all FRC Teams (All) to just those that are checked (Competing Only)

[Blue] The "new" and "edit" buttons can be used to add unofficial teams for Off-Season use. These are disabled at official events.

## Adding Off-Season Teams (Optional)

The screenshot shows the 'Field Management System' window. At the top, there's a navigation bar with buttons: Event Wizard, Match Play, Match Test, Match Review, Field Test, Reports, Settings, and About. Below this is a progress bar indicating 'Step 3: Practice Team Selection'. The main area is titled 'Select Teams to Participate in Practice Matches Or Add Unofficial Teams'. It features a table of existing teams with columns for Team #, Team Name, and Robot Name. A modal dialog is open in the center, allowing the user to add a new team. The dialog has fields for Team Number (with a red arrow pointing to it), Full Team Name, Short Team Name, Location (City, State/Prov, Country), Robot Name, and Rookie Year. There are 'Save' and 'Cancel' buttons at the bottom of the dialog. At the bottom of the FMS window, there's a status bar showing 'Total Competing Teams: 0' and a 'Filter Team List' input. On the right side of the status bar, there are buttons for 'New', 'Edit', 'Show Teams: All (selected) / Competing Only', 'Clear All Keys', 'Generate Security Keys', and 'Export Keys'.

If additional teams are needed at an off-season event, the "new" button (blue box above) can be used to create a custom team. The team number (red arrow) must be unique. Make sure the team is checked as competing once created. Only teams added manually can be edited, those downloaded from *FIRST* are protected from edits.

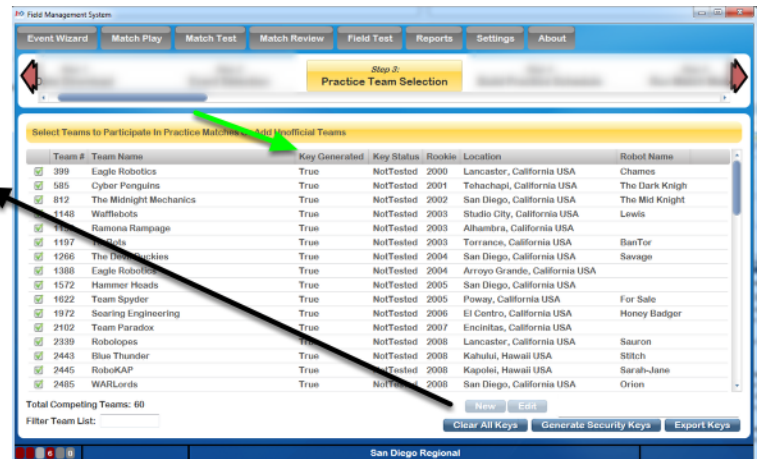
Events with custom teams cannot sync with *FIRST* servers.

NOTE: Teams 9985 to 9999 are "pre-loaded" Teams that, while not "official teams" in FRC, can be used during the Off-Season at an event without disabling the ability to Sync with *FIRST* servers.



# Event Manager (FMS)

## Generate Security Keys



Once the teams competing at the event have all been selected, and proper number is displayed under "Total Competing Teams", security keys should be generated for use by the field. This is done using the "Generate Security Keys" (black arrow) button. Once keys are generated, a success message will be displayed and (green arrow) the "Key Generated" column will display the new status of "True".

If additional teams are added later, the same button can be used to generate keys for those new teams- teams with existing keys will remain untouched.

Select *Export Keys* (blue arrow) to save the key file needed to program the keys into the Radio Kiosk used by teams to program their robot radios. This should only be used by the FTA, as it requires their password to complete.

- After WPA security keys have been distributed to the teams, it is important to not require these codes to be redistributed and reprogrammed. Teams that already have a key do not receive a new one when the *Generate Security Keys* button is pressed.

The Qualification and Playoff schedule generation steps assume that all teams will use the same security keys throughout the event; as a result, performing Keys steps is not necessary to repeat on those steps of the Wizard.

If necessary, the Clear All Keys button (red arrow) can be used to return all teams to their default, keyless, state. This should only be used carefully, as any programmed radios would need to be re-done. This action requires the FTA password.

# Build Schedule

Though only displayed here once, this step is the same for both the Practice and Qualification portions of the event.

## Define Tournament Level Parameters

Field Management System

Event Wizard | Match Play | Match Test | Match Review | Field Test | Reports | Settings | About

Step 1: Define Practice Schedule | Step 2: Qual Team Selection | **Step 3: Build Qual Schedule** | Step 4: Run Match Maker | Step 5: Activate Qual Schedule

Configure Qualification Schedule Generation Parameters

Schedule Parameters | Schedule

Cycle Time (min): 0 | Matches Per Team: 0 | Total # Teams: 95 | Total # Matches: 0

Add Day

Tournament Levels are configured and managed in the build steps of the Event Wizard. This step is used to setup the start and stop times for the Day(s), the lunch period, number of matches per team, and match duration. In our example steps, we'll be building a two day qualification tournament.

(1) Confirm the number of Teams matches the number expected (as defined in the [Team Selection](#) step)

(2) Enter the Cycle Time (in minutes) for matches. This is the start-to-start time for matches

(3) Enter the number of matches per team (which will usually be pre-populated with the number required by FIRST HQ)

The number of matches that will be needed will be displayed on the far right (Total # Matches)



# Event Manager (FMS)

## Add Days

Once the level parameters have been defined, days must be added. A Day should be added for each day on which matches will be played for that tournament level (normally one day for practice, two for qualifications and one for playoffs). Use the button marked in **Green** to add the number of days necessary to the list. If necessary, a Day (and any associated breaks) can be deleted by using the **Orange** marked button.

**[Red]** Confirm the start date and time for each day of the level. The day of the week is displayed in red next to the box, and is used to confirm the schedule day is entered correctly.

**[Blue]** Enter the approximate number of matches for each day of the level (estimates are fine, this may need adjustment as breaks are added)

**NOTE:** the total number of matches over the course of all days in a level must be the same as the *Total # Matches* shown at the top of the parameters window

# Event Manager (FMS)

## Add Breaks

Field Management System

Event Wizard Match Play Match Test Match Review Field Test Reports Settings About

Step 8: Build Qual Schedule

Configure Qualification Schedule Generation Parameters

Schedule Parameters Schedule

Cycle Time (min): 7 Matches Per Team: 10 Total # Teams: 49 Total # Matches: 82

Add Day

Day Start: 03/02/2018 9:00 AM Friday How Many Matches: 65 Day End: 05:35 PM Delete Day

Add Break

Description: Lunch After Match Number: 25 Length (min): 60 Break Start: 11:55 AM Delete Break

Day Start: 03/03/2018 9:00 AM Saturday How Many Matches: 17 Day End: 11:14 AM Delete Day

Add Break

Description: Speaker After Match Number: 75 Length (min): 15 Break Start: 10:10 AM Delete Break

Clear Schedule Parameters Generate Schedule

Monterrey Regional

Once level days have been defined, day breaks can be added. Breaks can be added for things like lunch, speakers, sponsor presentations, etc. Breaks are associated with a particular day, which means the matching *Add Break* button must be used under the matching day on which the break will occur. Press the *Add Break* (marked in Green) button to add the appropriate number of breaks to each day on your schedule. If any breaks must be removed, they can be deleted using the *Delete Break* button shown in Orange. There is no limit to the number of breaks on a particular day. For each break, parameters must be defined:

[Red] Short description (which will appear on the printed schedules and the web)

[Blue] The match number after which the break will happen (must be unique, i.e. no cascading breaks)

[Pink] The length (in minutes) of the break before the next match should start

To the right of the break length the start time will be displayed based on the data entered (i.e. if the event remains on schedule, the break will start at that time).

# Event Manager (FMS)

## Validation Messages

The screenshot displays the 'Field Management System' window. At the top, there is a navigation bar with tabs: Event Wizard, Match Play, Match Test, Match Review, Field Test, Reports, Settings, and About. Below this is a progress bar with four steps: Step 1: Activate Practice Schedule, Step 2: Qual Team Selection, Step 3: Build Qual Schedule (highlighted), and Step 4: Run Match Maker. The main area is titled 'Configure Qualification Schedule Generation Parameters' and has two tabs: 'Schedule Parameters' and 'Schedule'. The 'Schedule Parameters' tab is active, showing fields for Cycle Time (min): 7, Matches Per Team: 10, Total # Teams: 49, and Total # Matches: 82. Below these are two sections for adding days and breaks. The first section is for Friday, 03/02/2018, with 65 matches, ending at 05:35 PM. It includes an 'Add Break' button and a table with one break: Description: Lunch, After Match Number: 25, Length (min): 60, Break Start: 11:55 AM, and a 'Delete Break' button. The second section is for Saturday, 03/03/2018, with 17 matches, ending at 10:59 AM. It also includes an 'Add Break' button and a table with one break: Description: Speaker, After Match Number: 75, Length (min): 0, Break Start: 10:10 AM, and a 'Delete Break' button. At the bottom left, a red error message states: '3/3/18: All breaks must have a length of one (1) minute or longer.' Two red arrows point from this message to the 'Generate Schedule' button, which is disabled. The 'Clear Schedule Parameters' button is also visible. The bottom status bar shows 'Monterrey Regional'.

If any data entered is not valid, a message will appear on the bottom left and the *Generate Schedule* button will become disabled. The validation message will contain the date (when applicable) followed by the message text. All validation errors must be corrected before a schedule can be generated.

# Event Manager (FMS)

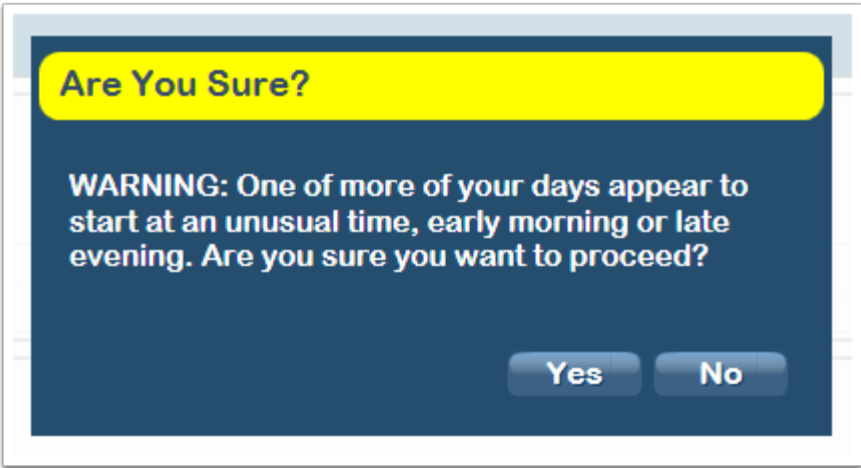
## Confirm and Generate

Before generating the schedule, confirm all data is accurate as displayed. Particularly those items indicated with **red** arrows, which are most critical to event schedule. If the event has a Regional Director (RD) or show manager, the schedule should be reviewed with them as well.

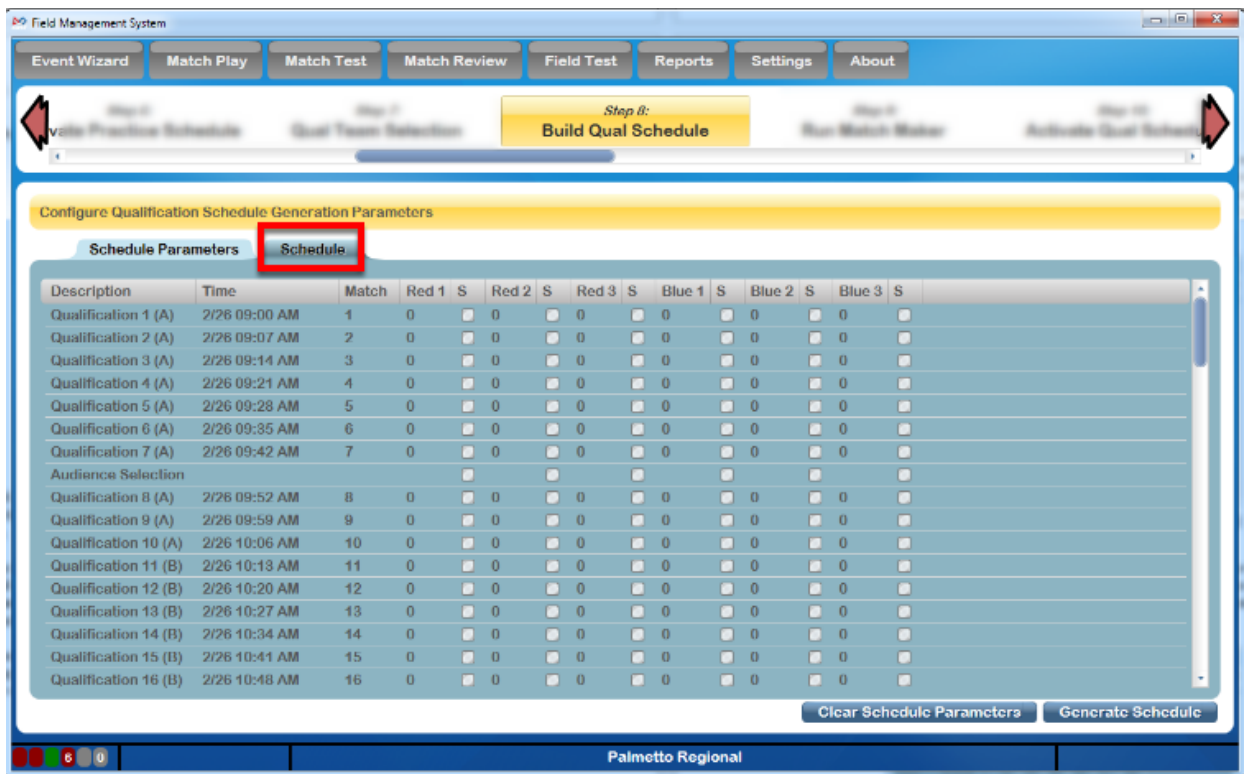
If all information is accurate, click the *Generate Schedule* button marked with the **Green** arrow. While generating, the screen will turn gray and the "busy" indicator will show on the bottom right. A confirmation dialog will appear when the process completes. Messages may appear to provide warning about elements of the schedule, and off Yes/No selections before continuing to generate the schedule.

In the example below, we've accidentally attempted to create a schedule that starts at 9:00 PM instead of 9:00 AM. We could still go with 9:00 PM if we wish by selecting Yes, or selecting No to go back and make a correction.

# Event Manager (FMS)



## Review



After generation, clicking the "Schedule" tab (marked with a red box) will present the full schedule based on the parameters that were supplied. This schedule should again be reviewed for accuracy with any appropriate parties. Breaks/changes cannot be made later without redoing other steps

## Event Manager (FMS)

(such as Match Maker) or losing match progress (if matches have been played) so it is important to have the schedule be accurate from the start.

### Notes:

Note that these times are fixed and will not update, *"The Schedule is The Schedule"* so to speak.

The goal should be to play as close to the original published schedule as possible, without getting more than 4-5 minutes ahead. The timer on the bottom bar ([see here](#)) will display ahead/behind information.

It is recommended to not get too far ahead regardless of how well things are going as this can be confusing to teams, as well as parents, VIPs, sponsors, etc. who show up to see a particular team compete only to find out the match was played early.

## Playoff Notes

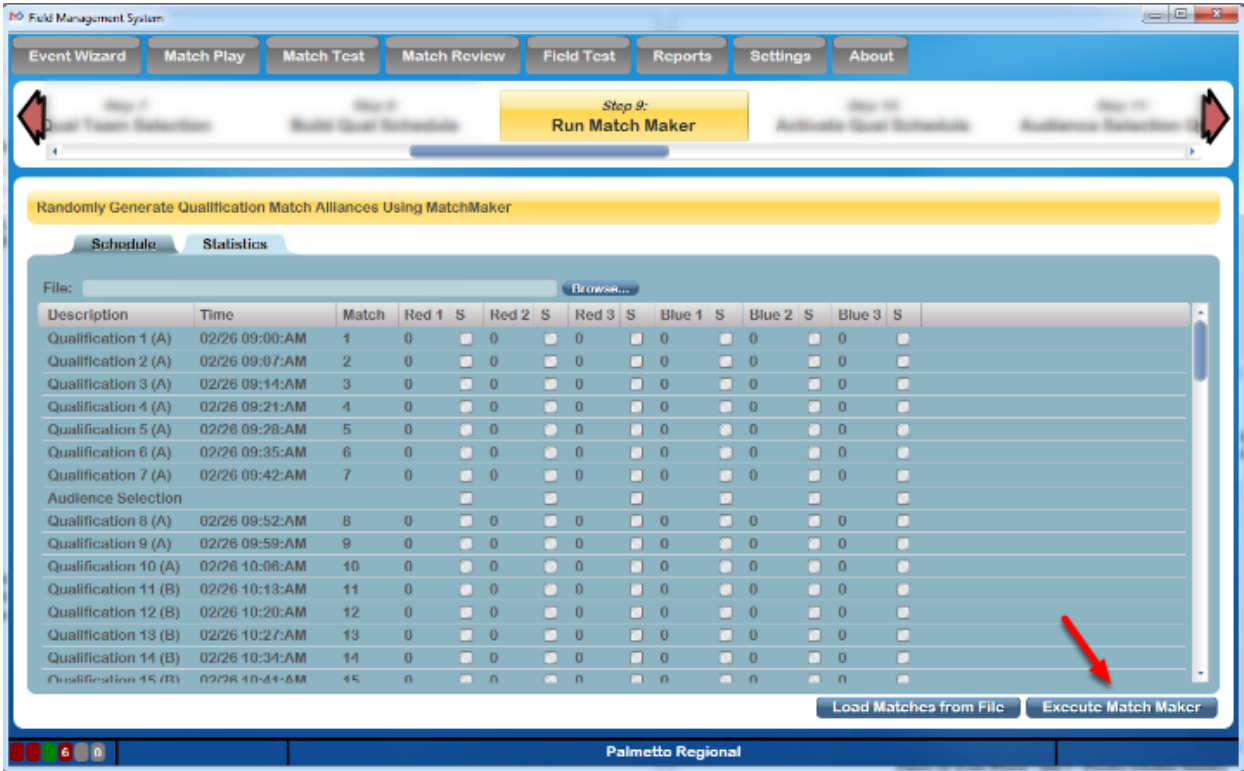
Once the Alliance Selection has been completed, the next step in the Event Wizard is to configure the Playoff Tournament. In order to generate a Playoff Schedule, alliance selection must be complete. If it is not, an error message will be presented saying to complete the alliance selection process.

The FMS software will only populate the quarterfinal matches (or octofinals/semifinals for other size tournaments) initially in Playoffs. As alliances advance in the Playoff Tournament the software will automatically populate the next round as teams advance from the prior rounds.

# Run Match Maker

Though only displayed here once, this step is the same for both the Practice and Qualification portions of the event.

## Execute Match Maker

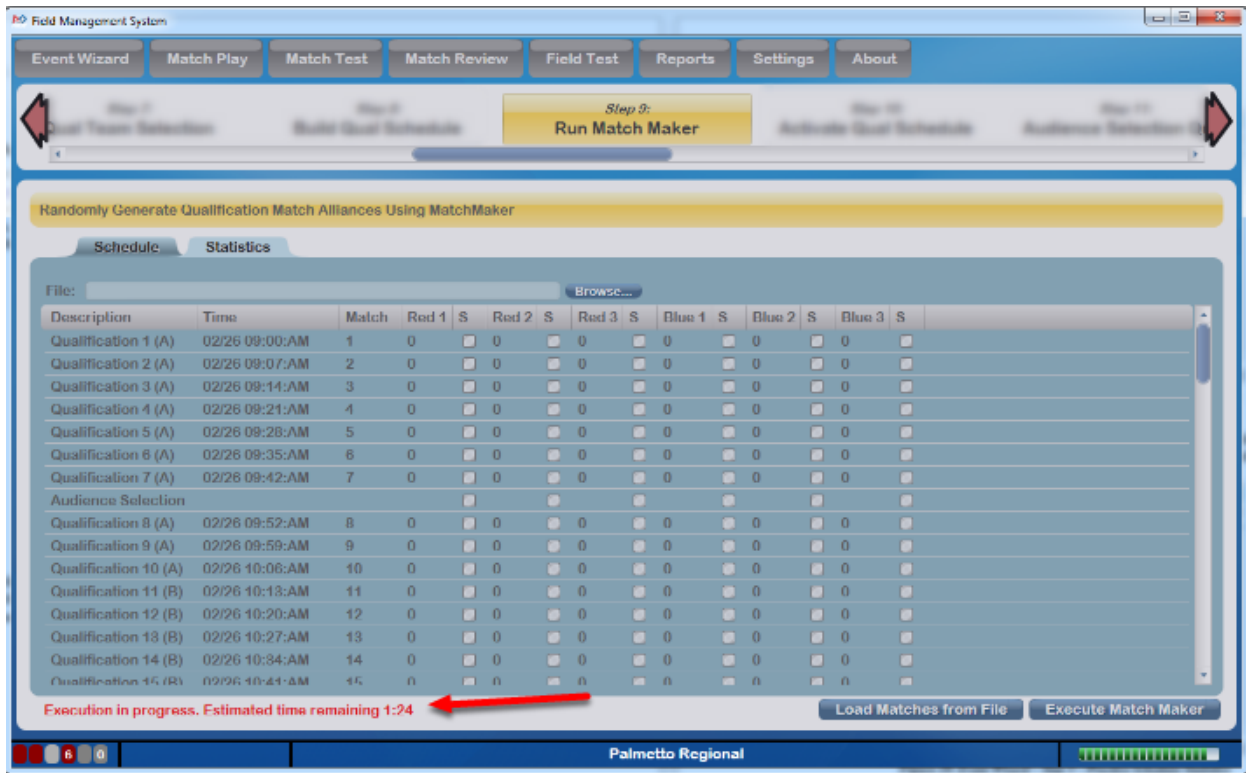


Once the match schedule has been generated it's necessary to generate the alliances. The [MatchMaker algorithm](#) is used for this purpose. It creates over 5 million possible schedules and selects the best one that meets the criteria outlined in the FRC Manual. Match Maker should only be run one time for the Practice schedule, and one time for the Qualification schedule. If for some reason it is believed that the schedule is not optimum, consult FRC Engineering for additional review. This process should be done with the FTA present.

# Event Manager (FMS)

The schedule generated in the previous step will be present on the Match Maker step. To begin the pairing process, click the *Execute Match Maker* button (marked with the Red arrow). Confirmation will be required that new execution is requested, as any previous executions will be removed.

## Match Maker In Progress

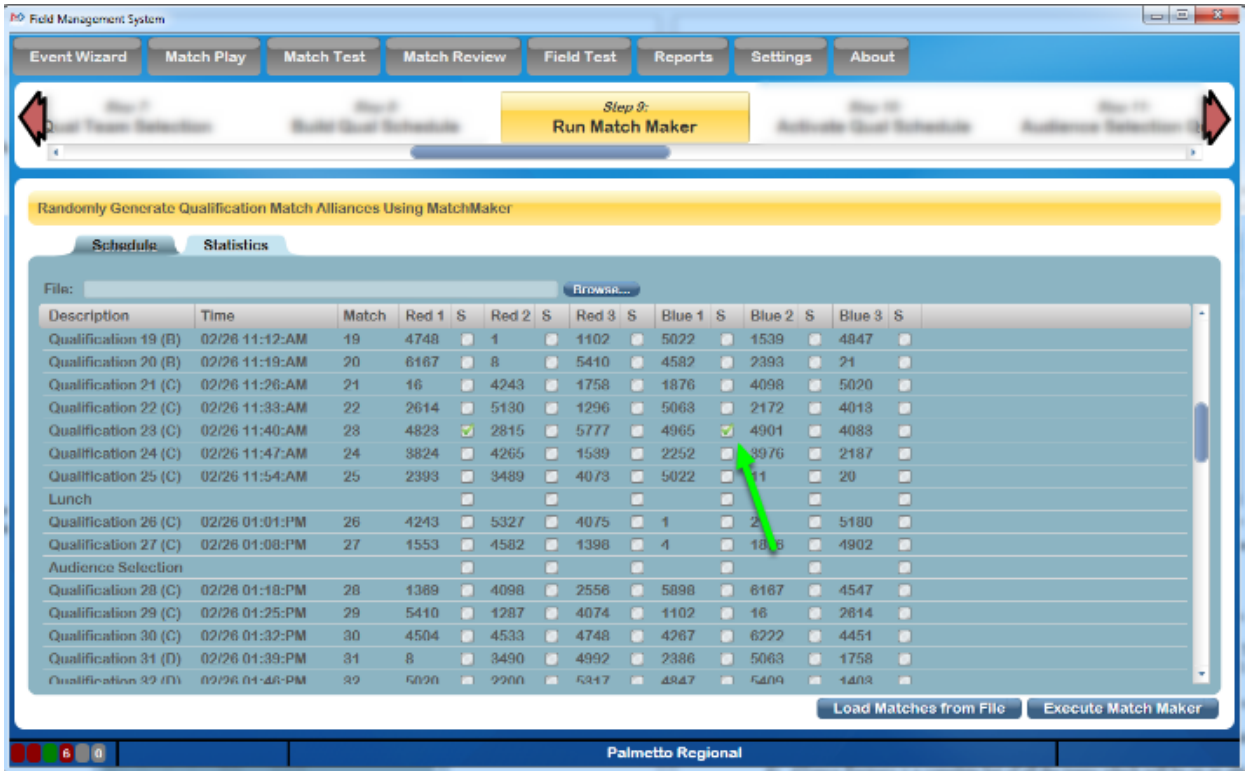


Upon execution, Match Maker will begin formulating the alliances. On the lower left, a progress message will indicate how much time (approximately) is remaining in the process. This process takes more time when more teams are involved- occasionally upwards of four minutes. The process should not be interrupted. Upon completion, a success (or failure) message will be presented. Match Maker can only run if the user has Administrator permissions on the server.



# Event Manager (FMS)

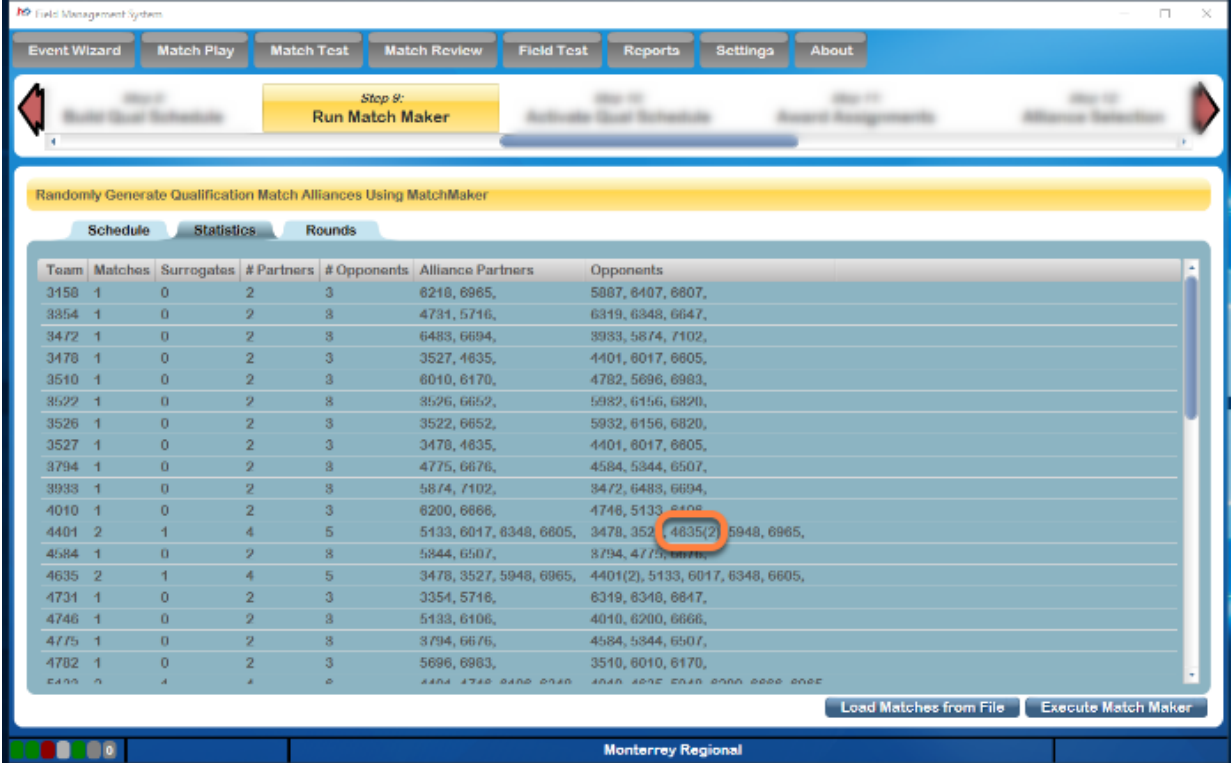
## Review Schedule



When the process is complete, the team numbers will be shown in place on the schedule. If any teams are playing as a Surrogate, the box to the right of the team number will be checked (shown with the Green arrow). The schedule (now showing the alliances) should match what was entered on the previous step.

# Event Manager (FMS)

## Review Statistics



Field Management System

Event Wizard Match Play Match Test Match Review Field Test Reports Settings About

Step 9: Run Match Maker

Randomly Generate Qualification Match Alliances Using MatchMaker

Schedule Statistics Rounds

Team	Matches	Surrogates	# Partners	# Opponents	Alliance Partners	Opponents
3158	1	0	2	3	6218, 6965,	5887, 6407, 6607,
3354	1	0	2	3	4731, 5716,	6319, 6348, 6647,
3472	1	0	2	3	6483, 6694,	3933, 5874, 7102,
3478	1	0	2	3	3527, 4635,	4401, 6017, 6605,
3510	1	0	2	3	6010, 6170,	4782, 5696, 6983,
3522	1	0	2	3	3526, 6652,	5982, 6156, 6820,
3526	1	0	2	3	3522, 6652,	5932, 6156, 6820,
3527	1	0	2	3	3478, 4635,	4401, 6017, 6605,
3794	1	0	2	3	4775, 6676,	4584, 5844, 6507,
3933	1	0	2	3	5874, 7102,	3472, 6483, 6694,
4010	1	0	2	3	6200, 6666,	4746, 5133, 6106,
4401	2	1	4	5	5133, 6017, 6348, 6605,	3478, 3527, 4635(2), 5948, 6965,
4584	1	0	2	3	5844, 6507,	3794, 4775, 6676,
4635	2	1	4	5	3478, 3527, 5948, 6965,	4401(2), 5133, 6017, 6348, 6605,
4731	1	0	2	3	3354, 5716,	6319, 6348, 6647,
4746	1	0	2	3	5133, 6106,	4010, 6200, 6666,
4775	1	0	2	3	3794, 6676,	4584, 5844, 6507,
4782	1	0	2	3	5696, 6983,	3510, 6010, 6170,
5433	2	1	4	5	4404, 4746, 5408, 6740,	4040, 4675, 5248, 6700, 6983, 6985,

Load Matches from File Execute Match Maker

Monterrey Regional

Definitions of the content in each column on the statistics tab is as follows:

- *Team* = Team Number
- *Matches* = number of matches played which are used to calculate rankings. This number should match the number in "Matches Per Team" at the top of the [build screen](#).
- *Surrogates* = number of matches played in which this team is a surrogate. Teams should only play 1 surrogate match maximum. If for some reason you see a number greater than 1 in this column, click the *Generate Schedule* button again to regenerate the alliance pairings.
- *# Partners* = total number of different alliance partners. The total possible number of different alliance partners is the number of matches played \* 2
- *# Opponents* - total number of different opponents. The total possible number of different opponents is the number of matches played \* 3.
- *Alliance Partners* = a complete list of all the teams which will be on an alliance with the team in the *Team* column. Notation is given as Team Number (number of times this team will be on your alliance). For example: 812(2) means the team in question will be on an alliance with team 812 twice over the course of all Qualification matches.

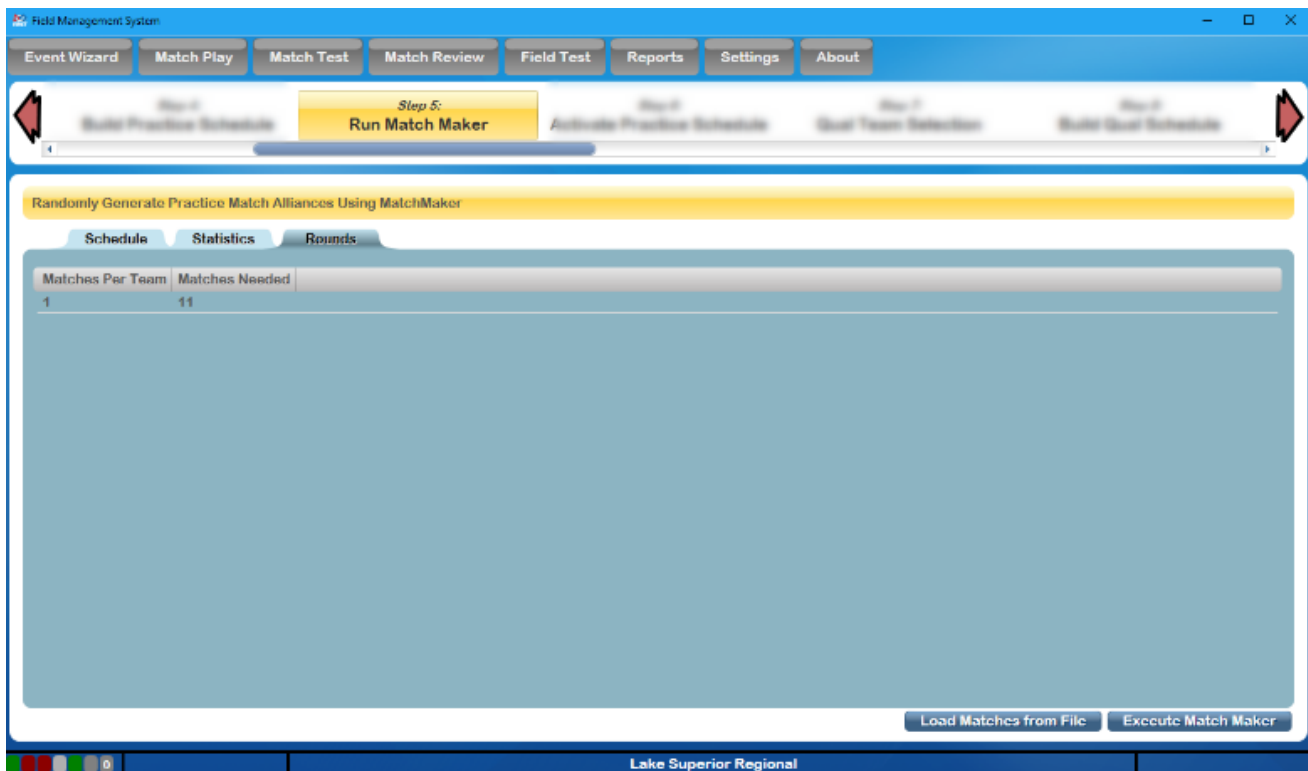
## Event Manager (FMS)

- *Opponents* = A complete list of all teams which will be an opponent of the team in the *Team* column. Notation is the same as *Alliance* column.

If a team is playing with (or against) the same team multiple times, it will be shown in parentheses next to the other team's number, as shown in the orange box above.

If the statistics seem unsatisfactory, contact FRC Engineering before re-running the Match Maker process in order for additional steps to be taken.

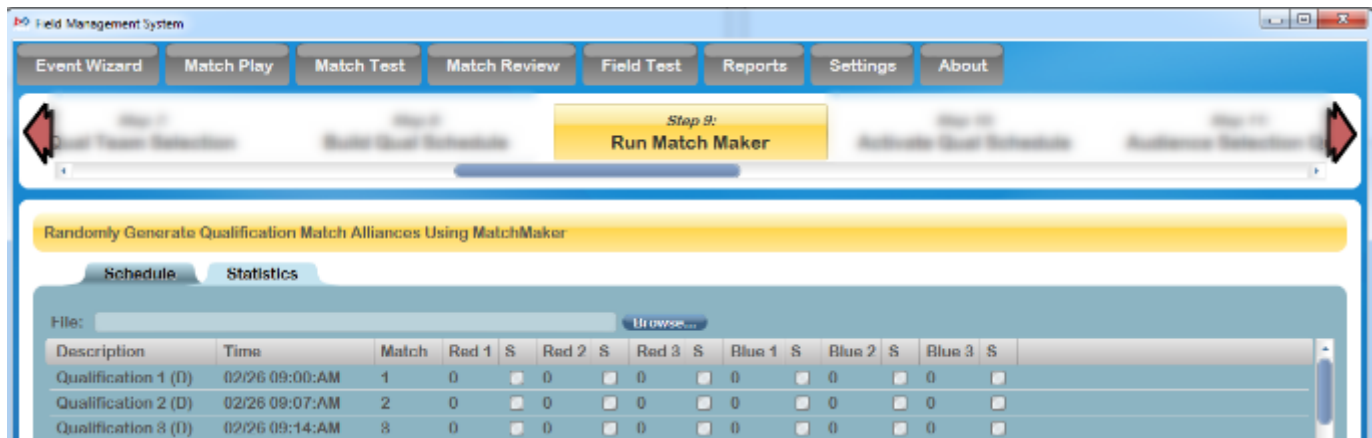
## Rounds



The new "Rounds" tab displays information about the number of matches that must be played for a "round" to be completed (i.e. each team has played one additional match). This tab is primarily for use by event support. For off-season events, it could be used to understand where to end matches if Qualification matches must be skipped due to time.

# Event Manager (FMS)

## Alternate Alliance Pairing Method (Optional)



If an alternative Alliance Pairing Algorithm is desired for the Practice or Qualification Tournament, it can be imported into the FMS software. This is done on either "Run Match Maker" step in the Wizard. This is not supported for official *FIRST* Events.

Before adding pairings, the schedule itself must be generated on the previous step. Schedules (time/date portion) cannot be imported, only the pairings.

Select the file using the *Browse...* button, and click *Load Matches from File* on the bottom of the display (not pictured). The imported alliance pairings overwrite the alliances generated by the FMS software, but retain the scheduled match times. Do not use the *Execute Match Maker* button if a custom pairing is being loaded.

The fields in the import file must be (Each match is one line, for a total of 13 fields per line, tab delimited):

Field1 = Match Number - A number that represents the match number

Field2 = Red Team 1 Number - A number that represents a team number

Field3 = Red Team 1 Is Surrogate - true or false indicating that the team is a surrogate

Field4 = Red Team2 Number - A number that represents a team number

Field5 = Red Team2 Is Surrogate - true or false indicating that the team is a surrogate

Field6 = Red Team3 Number - A number that represents a team number

Field7 = Red Team3 Is Surrogate - true or false indicating that the team is a surrogate

## Event Manager (FMS)

Field8 = Blue Team 1 Number - A number that represents a team number

Field9 = BlueTeam1 Is Surrogate - true or false indicating that the team is a surrogate

Field10 = BlueTeam2 Number - A number that represents a team number

Field11 = BlueTeam2 Is Surrogate - true or false indicating that the team is a surrogate

Field12 = BlueTeam3 Number - A number that represents a team number

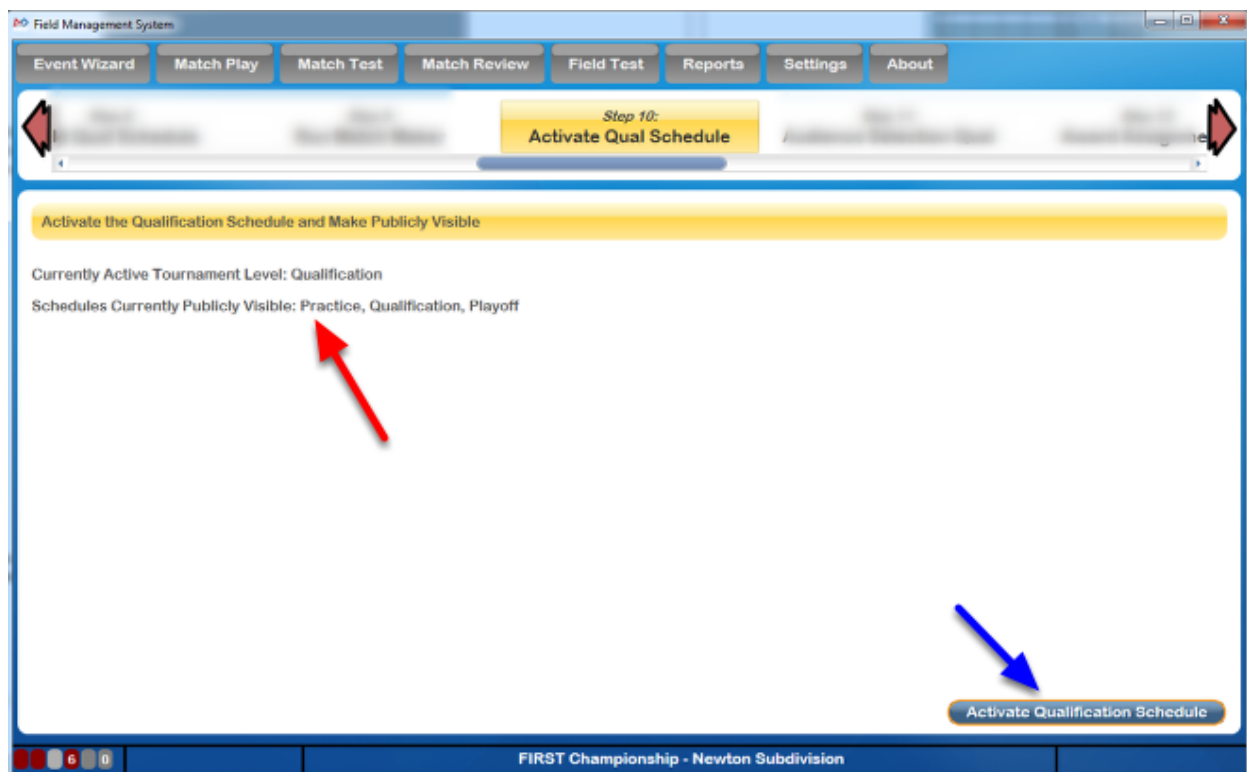
Field13 = BlueTeam3 Is Surrogate - true or false indicating that the team is a surrogate

*An example of this file can be found in the [Appendix](#).*

# Activate Schedule

Though only displayed here once, this step is the same for both the Practice, Qualification and Playoff portions of the event.

## Activate



After the match schedule has been generated and alliances defined, it must be activated in order to play Matches or appear on the web.

[Blue Arrow] Clicking the *Activate Practice Schedule* button will make the schedule available for Match Play and available for viewing on the *FIRST* website (the schedule does not sync in FMS Off-Season or when disabled)

## Event Manager (FMS)

[Red Arrow] The currently active tournament level, and all levels that are publicly visible, are displayed on the step.

## Database Backup

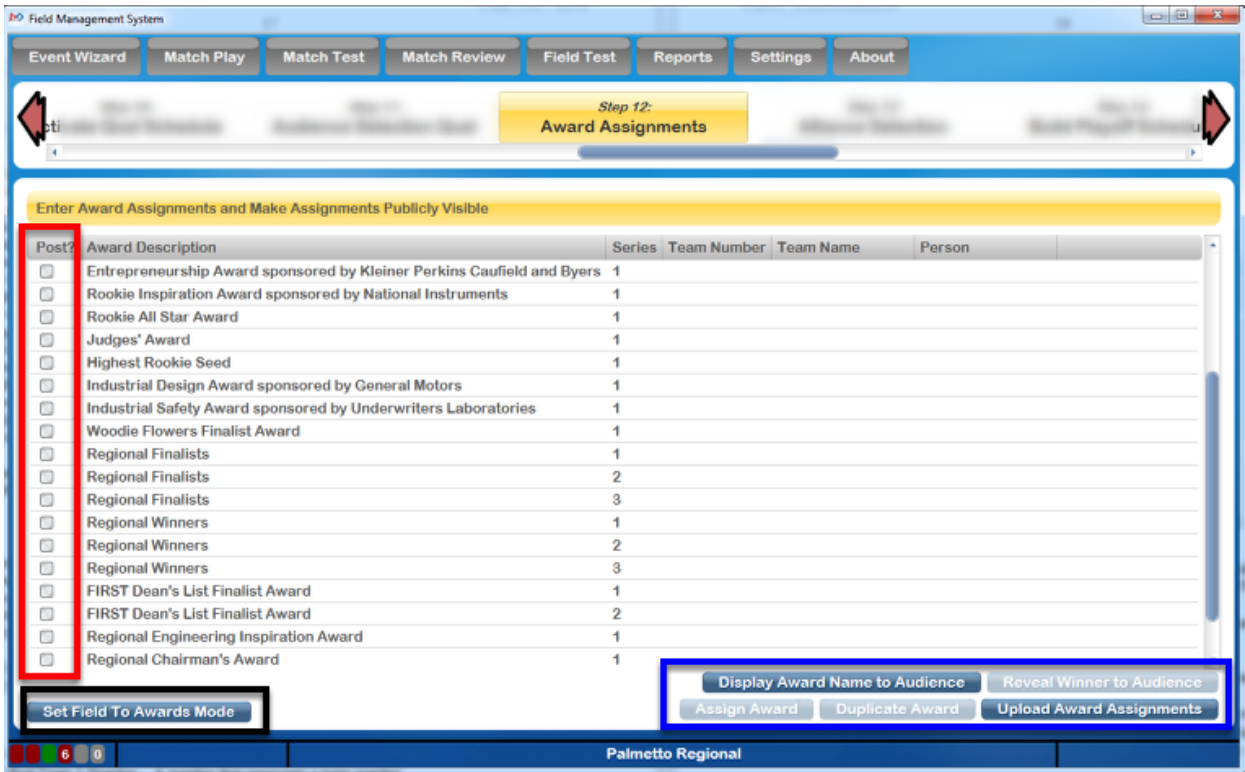
Typically, after a tournament has been made active, the user will go to Match Play and play through the match schedule. The FMS software does incremental backups stored on the local hard drive and USB drive (if so indicated in *Settings->Backup Config*) throughout the Tournament, but it's also important to do a complete backup at the end of each stage as well.

Full backups of the event database can be made by opening Match Play or Match Test and using the *Force Event Database Backup* button available on the *Options* tab as shown in *5.2: Match Play*. Backups never hurt- and can be done as often as requested.

# Award Assignments

This step appears twice in the Event Wizard, but behaves similarly in both cases. For some events, like Districts, there are no awards on the first day (in which case they would not use the first Award Assignments step).

## Assignments



[Red] In order for an award to be visible on the web through the FIRST website, it must be marked as "Post" using the checkbox in that awards' row.

[Black] Using the *Set Field to Awards Mode* button the lights and team signs can be changed in the arena to a more universal look that's ready for the awards ceremony.

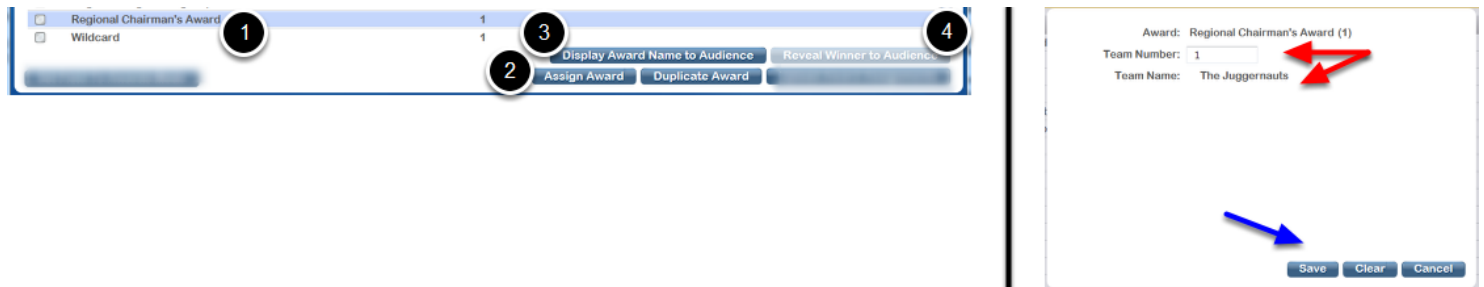
[Blue] Control buttons used to manage the award presentation process. Described below.



# Event Manager (FMS)

After all awards for the day (or the event) have been presented, use the *Upload Award Assignments* button to send those assignments (if marked with Post) to the *FIRST* website.

## Present an Award



To assign an award:

(1, left) start by selecting the award that's being presented and click on it's name (the background of the row will turn blue)

(2, left) Click the *Assign Award* button to enter the winning team information

(Red, right) Type the team number of the winning team, and the team name will appear below as the team number is typed. If the award is presented to a team that's not competing (such as at District Championships) the number will show a red triangle "error" indicator, meaning the team did not compete at the event.

(Blue, right) Once the winning team is entered, clicking the *Save* button. Use *Cancel* to ignore the edits, or *Clear* to remove the award winner.

(3, left) Once the Emcee has started to read the script for the award (where they inform the audience what the award is about) click the *Display Award Name to Audience* button to display a "frame" on the Audience Display informing them which award is being presented. Confirm that the award name showing on the Audience Display is the one being read by the Emcee.

(4, left) **ONLY AFTER THE EMCEE HAS ANNOUNCED THE WINNING TEAM NUMBER** click this button to display the winning team's number and name to the Audience. See [Audience Screen](#) for examples of what these screens look like.

# Event Manager (FMS)

## Award Assignment Notes

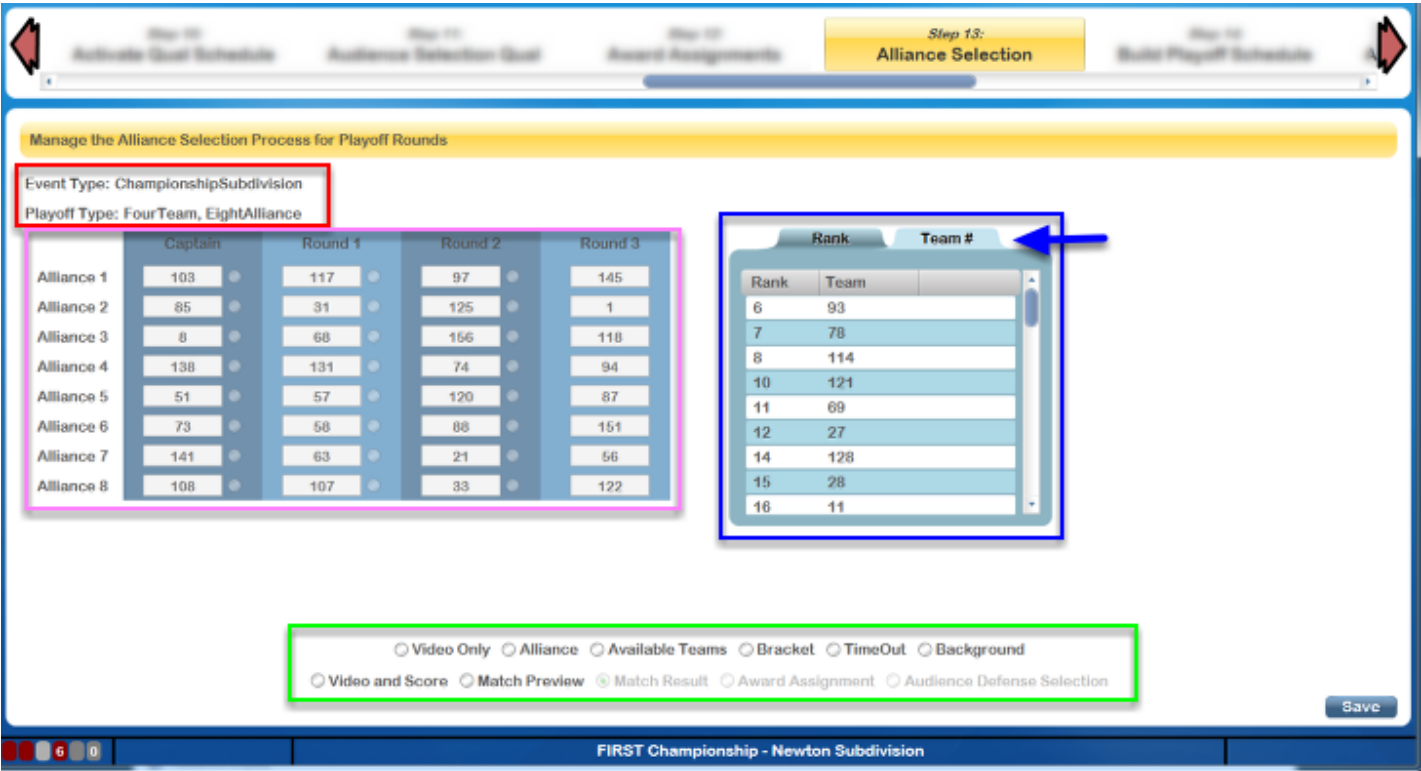
If more than one instance of an award is being presented, but not enough instance are showing in the available awards list, a duplicate can be made. For example, if two *Judges' Awards* are presented, click on the *Judges' Award* and press the *Duplicate Award* button on the bottom of the screen. A second instance (with "Series" 2) will be created and available for assignment.

FMS Off-Season does not support award distribution, and as such all buttons will be "grayed out" on the two award assignment wizard steps.

# Alliance Selection

Upon completion of the Qualification matches Alliance Selection is done in preparation for the Playoff Tournament

## Alliance Pairing



[Red] At all official FRC Events, the 8-alliance tournament is used, but smaller Off-Season events may use a 4-alliance playoff tournament. The current settings, as picked on the Event Selection step, are shown on the top of the screen.

[Blue] The list of available teams for selection is shown in the display box on the right hand side of the screen. As teams are selected from the pool of available teams, the corresponding team number is removed from the list of available teams. The list can be viewed sorted by Rank (default)

## Event Manager (FMS)

or by team number (the "Team #" tab), and can be selected using the tabs shown by the blue arrow.

[Green] Use the Audience Video Control panel to select the Alliance (Pairing) screen to display to the audience. This can be used in conjunction with the Available Teams screen to inform the audience (and picking team) of which other teams remain available.

[Pink] The Scorekeeper populates the team numbers into this table. If a number is entered that is not in the available team list, an icon will appear in the upper left corner of the text box (and hover text will indicate the error). If a team number is entered twice, the newest entry takes priority and the old location is changed to blank. If an alliance captain is selected in a Round 1 pick, the captains from lower ranked alliances will be promoted automatically. If a team number is deleted, they're re-added to the available teams box.

Once the selection process is complete, select "Save" and move on to the next step of the Wizard.

# Alternate Substitution

## Substitution

Field Management System

Event Wizard Match Play Match Test Match Review Field Test Reports Settings About

Step 17: Alternate Substitution

Substitute in a Backup Team During Playoff Rounds

Event Type: Regional

Playoff Type: ThreeTeamWithBackups, EightAlliance

	Captain	Round 1	Round 2	Backup
Alliance 1	1	28	66	
Alliance 2	4	31	63	
Alliance 3	8	33	60	
Alliance 4	11	34	59	
Alliance 5	16	41	58	
Alliance 6	21	45	57	
Alliance 7	25	48	56	
Alliance 8	27	51	53	

Rank	Team
1	4823
2	6167
3	283
4	4074
5	4547
6	1553
7	6222
8	3824
10	4965
11	1102
12	4243

☐ Video Only ☐ Alliance ☐ Available Teams ☐ Bracket ☐ TimeOut ☐ Background

☐ Video and Score ☐ Match Preview ☒ Match Result ☐ Award Assignment ☐ Audience Defense Selection

Save

Palmetto Regional

Are You Sure?

Are you sure you would like to substitute Team 4823 for Team 66? This cannot be undone.

Yes No

Playoff Tournament rules (other than events using 4-team alliances, such as the *FIRST* Championship) stipulate that if any member of an alliance becomes unable or unwilling to continue playing through the tournament, they can be replaced by the next highest-ranking team not selected during Alliance Selection. To add a backup team to an alliance:

(1) Type the new team number (incoming) into the "Backup" column on the corresponding alliance

- The incoming team should be the next team number on the list inside the blue box, as they would be the highest ranked unselected team. The only exception is if a team declines to be a backup, which they must have done before the Playoff tournament began.

(2) Click the radio button next to (right of) the outgoing team (being replaced)

(3) Click the *Save* button to initiate the swap. This will add the incoming team into the schedule in place of the outgoing team for all matches which have not yet been played.

- A confirmation dialog (shown on the right) will be presented and should be used to confirm the proper team numbers for incoming/outgoing.

# Event Manager (FMS)

## Un-doing Substitution

If a substitution is made by accident, it can be undone. Though it is possible to undo, it can add confusion to field staff and audience members, and scorekeepers should be double checking before entering substitute robots in the first place. To undo a substitution, click the red "X" next to the backup robot, as shown below with the green arrow. The software will confirm that you want to undo the backup robot, and at official FIRST events, require a password from event support before completing the process.

A backup robot cannot be removed once it has played in a match.

Field Management System

Event Wizard Match Play Match Test Match Review Field Test Reports Settings About

Step 14: Activate Playoff Schedule Step 15: Alternate Substitution Step 16: Award Assignments Step 17: Wildcards Step 18: Event Upload

Substitute in a Backup Team During Playoff Rounds

Event Type: Regional  
Playoff Type: ThreeTeamWithBackups, EightAlliance

	Captain	Round 1	Round 2	Backup
Alliance 1	3158	3354	3510	5716
Alliance 2	3472	3478	3522	
Alliance 3	3526	3527	3794	
Alliance 4	3933	4010	4401	
Alliance 5	4584	4635	4731	
Alliance 6	4746	4775	4782	
Alliance 7	5133	5344	5696	
Alliance 8	5932	6010	6106	

Rank Team #

Rank	Team
2	7102
3	5874
9	6666
11	6200
13	6694
15	6483
16	6348
17	6319
18	6647

☐ Video Only ☐ Alliance ☐ Available Teams ☐ Bracket ☐ TimeOut ☐ Background  
☐ Video and Score ☐ Match Preview ☐ Rankings ☒ Match Result ☐ Award Assignment

Set Field To Awards Mode Save

Monterrey Regional

# Wildcards

## Wildcards

Field Management System

Event Wizard Match Play Match Test Match Review Field Test Reports Settings About

Step 19: Wildcards

Determine any Wildcard winning teams based on teams who have previously qualified, or qualified multiple times at this event.

Wildcard Eligible Event ☒ Yes 1

FMS Data Up-To-Date ☒ Yes 2

Playoffs Complete ☐ No 3

Culture Awards Assigned ☐ No 4

Calculate Wildcards? 5 Calculate Wildcards

Wildcard Assignments: No Wildcards To Award

#	Finalist Team #	Wildcard?	Generating Team	Generating Event	Generating Award
---	-----------------	-----------	-----------------	------------------	------------------

Palmetto Regional

Per the rules outlined in the FRC Manual, under specific event conditions, Wildcards may be generated at Regional events, awarding the opportunity to attend the *FIRST* Championship to additional teams beyond the standard number. This step of the Wizard assists the user in determining if the event generated a Wildcard, and to which team the award should be given. In the 2017 season, all Regional events will have at least one Wildcard available.

Four prerequisites are required in order for the *Calculate Wildcards* button to become active:

1. *Wildcard Eligible Event*: Yes will be displayed if the current event is a Regional event. Wildcards are not generated at other events.
2. *FMS Data up-to-date*: The current FMS team list must have been downloaded within 4 days. If the data is old *Stale* will appear. Go back to the beginning of the Wizard and do the Data Download again to update the data.

## Event Manager (FMS)

3. *Playoffs Complete*: All required Playoff matches have been played, i.e. there is a declared winner of the Playoff Tournament.
4. *Culture Awards Assigned*: All the *FIRST* Championship qualifying awards must have been assigned and awarded.

Once all prerequisites are complete, the *Calculate Wildcards* button (5) can be pressed. If any Wildcards are generated at the event, the recipients will be listed in the area represented by the blue box. The accompanying script for the MC to read at the conclusion of the Awards Ceremony is available via [Reports](#) (Wildcard Script).

If any validation errors occur, or any status messages, they will appear in the spot shown by the **red** arrow. If no Wildcards are generated, the words *No Wildcards To Award* will appear under the status message area, to the right.

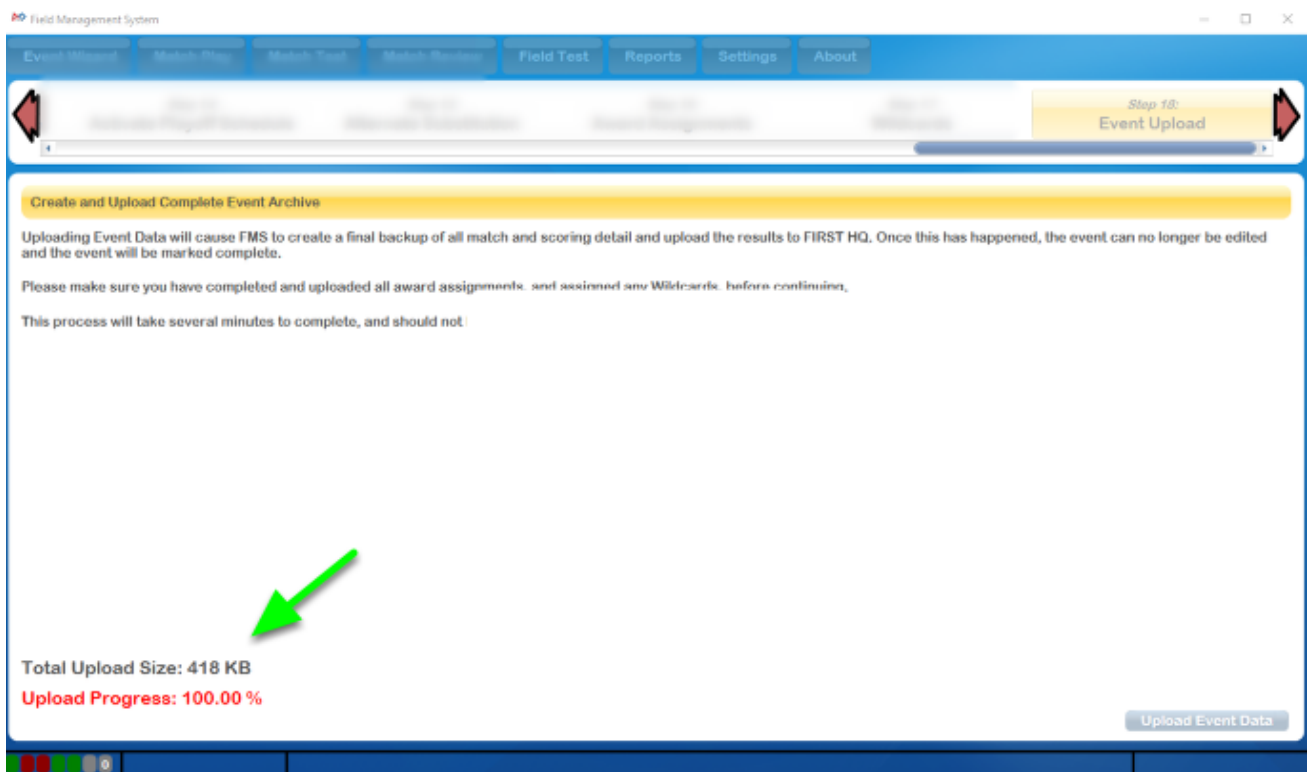


## Event Manager (FMS)

# Archive and Upload

At the end of the event, it's important to ensure that a backup is made of relevant tournament information to *FIRST* HQ.

## Archive and Upload



The *Event Data Upload* step is used to do a complete backup of all tournament information. Copies are placed on the Event Server, USB drive (if connected), as well as uploaded to *FIRST* (provided an Internet connection is available and the event is an official *FIRST* event). Verification is also done to confirm the upload was successful.

*DEPENDING ON THE SIZE OF THE DATABASE, THE AMOUNT OF LOG DATA STORED, AND THE SPEED OF THE INTERNET CONNECTION AT THE EVENT THIS STEP MAY TAKE UP TO 10 MINUTES!*

## Event Manager (FMS)

Status information will be shown in the bottom left corner (**green arrow**) during the Upload.

If the upload fails, be sure to check the backup settings in the Settings->Backup Config page and force a manual event backup. The backup is what is used to upload, so if you find there are problems performing a manual backup this is the best place to start debugging:

1. Ensure that the backup location is still present (didn't remove the USB drive, if applicable)
2. Ensure the backup location is set
3. Ensure the backup has been performed (check the file is on the disk and there is sufficient space)

Performing a forced event backup will cause the backup to be generated, and the upload may be re-attempted by returning to this step. Contact FRC Engineering before shutting down the server at the event, or if uploads are unsuccessful.

# Match Play/Test

# Event Manager (FMS)

## Interface

### Match Play



The Match Play (and Match Test) environment is the tool that is open most often during an FRC event. The screen is used to start and stop matches, disable robots, and control the Audience Display.

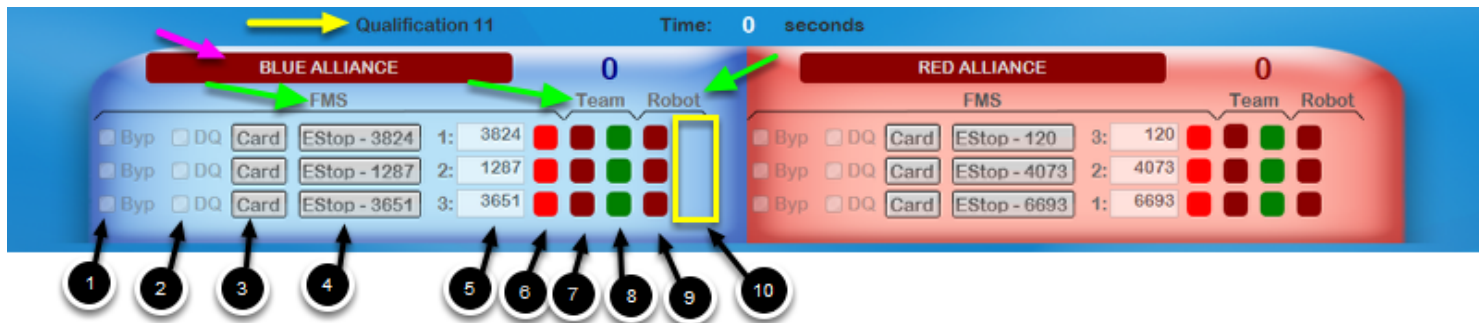
[Red] The top part of the screen shows the current match number, match time, score for the alliances and detail by station. Match time is updated in real time and will correspond with the same information shown on the LED Displays. The status of the robots at each end of the playing field is communicated to FMS by the SCCs and DSs. The color of each box corresponds to each end of the playing field, blue for the Blue Alliance, and red for the Red Alliance. Each box includes information on the status of the three robots on each alliance ([described later](#))

[White] Match Control is handled using the buttons in the center of the Match Play and Match Test screens ([described later](#))

# Event Manager (FMS)

[Blue] The lower portion of the screen changes based on the selected tab to display schedule information, detailed scoring, and more (described later)

## Station Status



Match number and timing information is shown at the very top of the display (yellow arrow), with time represented in total seconds (not min:sec) to match the timers on the field. The background of the "Blue Alliance" and "Red Alliance" fields (indicated by the pink arrow) will turn from Red to Green when there is a known ready state for all Robots on that Alliance (connected or bypassed). In order for a match to start, both Alliance backgrounds must be Green (known state for all Robots on the Field).

Additionally along the top bar of Match Play is detailed station information- the background color indicates the alliance (Red or Blue) and the number near the textbox indicates the station (1 to 3). The information for each Alliance is broken down into three groups, FMS, Team, and Robot (based on the titles indicated by the green arrow). Markers in the graphic are shown for Blue Alliance, though the layout is the same for the Red Alliance.

### FMS

Controls to inform FMS which robot in the indicated station position and how to handle it:

1. Byp - Select this box to bypass this particular station and force it to a ready (but disabled) state.
2. DQ - Select this box to indicate that the corresponding team has been DQ'd for this match (will also cause Bypass)
3. Card State (entered by Head Referee, can only be edited after Match is over):
  - Green - no card, team in good standing
  - Yellow - team has been assigned a yellow card
  - Red - team assigned a red card in this match. Setting the indicator to red also bypasses the Player Station and automatically assigns the team a DQ for the current match. Note that on its subsequent match, FMS will automatically change the red card to yellow

## Event Manager (FMS)

4. Estop - used to Estop the robot during the match. This box also shows the team number that it will Estop, for quicker reference.
5. Team Number - The team number which corresponds with the team designated to play in this station. Teams need to be in the correct station to ensure that they receive the proper Station ID and Position information from FMS.
6. WPA Key status:
  - Red - team has not been on the playing field
  - Yellow - has linked with the field, but has not played in a match
  - Green - the team has played in a match on the field

### Team

Indicates the state of the DS:

7. Left bubble - Indicates status of the FMS-to-DS link. If the team number and DS match, this bubble will be green.
8. Right bubble - Indicates status of the E-stop. If this light is green, the E-stop in the Team's Player Station is up. If it is red, the E-stop in the Player Station is down, or the Estop button on FMS has been pressed. An E-stop in the down position will cause the amber light in the Team Station to turn on.
  - All E-stops need to be in the up position to begin a match. Prestarting a match with any E-stop down will prompt a dialog box to be shown indicating in which Player Station the E-stop(s) are down.

### Robot

Indicates the state of the Robot:

9. Left bubble - DS-to-Robot link status. If the DS and Robot are linked, this bubble will be green. If the station has been Bypassed, a "B" will appear in this bubble. If no link is established, the Team Light in the Player Station will flash at 1Hz (1 time per second) rate.
10. Right bubble - Indicator would display in yellow marked area, but only shows when a Robot is connected. Mode and System state of the Robot. "A" indicates Autonomous Mode, "T" indicates Teleoperated mode. If the Robot is disabled, the bubble is red, it will be green when the Robot is enabled by FMS.

## Match Control (FCUI)



## Event Manager (FMS)

The buttons in the middle section are used to step through the Match process. In order to be available for use, a match must be selected from the Schedule tab. This bar is commonly referred to as the "FCUI" or Field Control User Interface (which came from the former version, which was a piece of hardware on the scoring table). Details on each button are as follows:

- *Prestart* - used to prep the field for the upcoming match. Prestart configures the field hardware for the six teams assigned in the Player Stations in the upper part of this screen.
  - *Prestart can be cancelled if necessary while it's running*
- *Show Match Preview* - displays the Match Preview screen with team names and current ranking data for teams in the upcoming match
- *Set Audience Display* - this button updates the Audience screen with the teams for the match
- *Match Start* - used to start the match (**MUST ONLY BE USED WHEN THE FIELD IS IN A SAFE STATE AND NO HUMANS ARE IN DANGEROUS POSITIONS. FTA MUST GIVE PERMISSION FOR A MATCH TO START!**)
  - *Match Cancel* - use this same button to cancel a match in progress (button text changes after start)
- *Commit* - confirm the score of the match and write the details to the database
- *Post Results* - trigger the Audience screen and show the final scores and updated Rankings for the 6 teams in the match
- *Timeout Start* - initialize or end a timeout and show the timing information to the Audience and on field LED displays. Length of a Timeout can be changed on the "Options" tab.

# Bypass vs DQ vs Red Card

## Significance

Bypass and DQ essentially perform the same function to the Driver's Station, but have different outcomes with respect to Rankings. Bypass is used when a team is unable to compete due to a malfunctioning robot, but still chooses to participate in the match by standing in the Player Station or with a Human Player. For this participation, the team is awarded full points. Bypass will disable any inputs from the corresponding team's Driver Station and cause the Team Light to flash at a 1Hz rate.

DQ is used to disqualify a team from a match. A DQ is given to a team which plays a qualification match without having passed Inspection, or simply chooses not to participate in the match.

The referee will issue a Red Card for a number of reasons, rules violations or inappropriate conduct during a match. If the Red Card indicator is showing when "Commit Score" is pressed the team receives 0 (zero) points for that match.

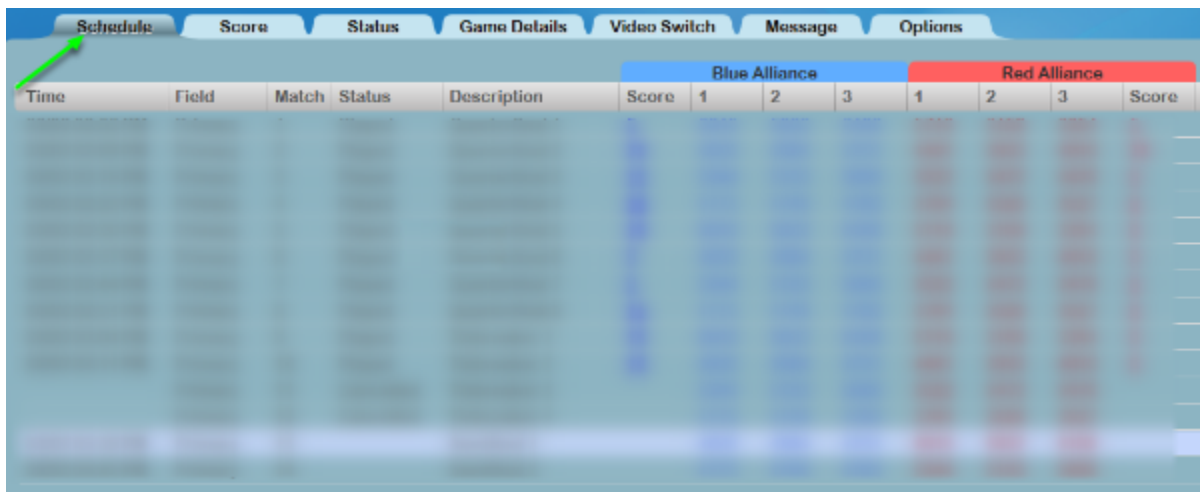


# Event Manager (FMS)

## Tabs

For detailed information within the Match Play and Match Test Interfaces

## Tabs



The bottom of the Match Play interface has a display window with a number of tabs:

- *Schedule* - displays the currently active schedule
- *Score* - displays the counts for various scoring elements as they are entered by referees or collected from automated scoring components on the field ([details found here](#))
- *Game Details* - displays detailed information specific to the game (if applicable, [details found here](#))
- *Status* - displays connection information on all the robots current on the playing field ([details found here](#))
- *Video Switch* - manual interface used to control the Audience Display
- *Message* - display messages on the Background of the Audience Display
- *Options* - configuration options

Many of these tabs are described below. Status and Score tabs are not described in this article but rather in later articles.

# Event Manager (FMS)

## Schedule

					Blue Alliance				Red Alliance			
Time	Field	Match	Status	Description	Score	1	2	3	1	2	3	Score
03/02 09:00 AM	Primary	1	Played	Qualification 1	131	2491	4674	3367	4539	2531	2823	92
03/02 09:07 AM	Primary	2	Played	Qualification 2	72	3754	877	2220	3275	3750	6047	83
03/02 09:14 AM	Primary	3	Played	Qualification 3	0	1986	1792	6056	7048	4181	2538	56
03/02 09:21 AM	Primary	4	Played	Qualification 4	0	5172	3298	3292	3883	3007	525	46
03/02 09:28 AM	Primary	5	Played	Qualification 5	85	5638	876	3277	2883	3134	5929	95
03/02 09:35 AM	Primary	6	Played	Qualification 6	139	2472	6175	6453	7235	3313	3102	15
03/02 09:42 AM	Primary	7	Played	Qualification 7	105	2500	4198	3	5576	4818	3300	76
03/02 09:49 AM	Primary	8	Played	Qualification 8	0	5658	4009	4239	7257	4360	3130	66
03/02 10:56 AM	Primary	9	Played	Qualification 9	0	3750	3277	3883	6056	2491	3275	40
03/02 11:03 AM	Primary	10	Played	Qualification 10	0	3313	2883	4539	1986	3754	5172	0
03/02 11:10 AM	Primary	11	Played	Qualification 11	5	4181	6047	2531	876	3300	2472	0
03/02 11:17 AM	Primary	12	Played	Qualification 12	0	4818	3292	5638	6453	3130	4009	0
03/02 11:24 AM	Primary	13		Qualification 13		3102	4239	3134	4198	3367	3298	
03/02 11:31 AM	Primary	14		Qualification 14		525	5929	4360	877	7048	2500	
03/02 11:38 AM	Primary	15		Qualification 15		2538	7257	7235	2823	2220	5576	
03/02 11:45 AM	Primary	16		Qualification 16		4674	5658	3007	1792	3	6175	

Currently active tournament level schedule, in match number order. To play a Match, click on it in the list (the list is disabled once Pre-Start is complete). The FCUI will automatically advance to the next unplayed Match at the conclusion of each Match (no need to "re-click" each time). To replay a Match, manually select it from the list and Pre-start.

The field are as follows:

- Time - Date/time the Match is scheduled to begin
- Field - Field on which the Match is scheduled to be played
- Match - Number of the Match
- Status - Match Status of one of the following values:
  - Played - Match Complete
  - In Progress - Match Running (on any field)
  - Aborted - Match was canceled or Estopped
  - (Blank) - Match not yet played
- Description - Short summary of the Match type
- Blue Alliance / Red Alliance:
  - Score - Alliance score (once Match is complete)
  - 1/2/3 - Team numbers in their matching stations

# Event Manager (FMS)

## Video Switch




Located on the Video Switch tab are the options to select what is displayed on the Audience Screen. See [Audience Display Screens](#) for more details on each option.

This interface allows the user to select, via the radio buttons, which screen to show to the Audience (i.e. which screen is active in the Audience program.) It also informs which screen is currently being shown.

Several options are not controllable through this interface, but serve to inform the user when these are the current active screens (such as Match Results, which must be triggered through the FCUI or Match Review).

## Message

The image shows a web interface for sending a message. At the top, a small text box contains the instruction: 'The text that is entered below can be sent to the Audience screen and it will be display on the Background, Alliance or Available Teams displays. You can enter up to 120 characters of text.' Below this is a large, empty text input area. In the center of this area, there is a white rectangular box containing the text: 'Example Message', 'Additional Content', and 'Final Line of Text|'. At the bottom right of the interface, there are two buttons: 'Send Message' and 'Clear Message'.

Messages can be displayed on all Audience Display instances by entering them here and selecting the *Send Message* button. To remove the text from the Audience Display use the *Clear Message* button. Messages will be displayed on all instances of Audience Display running on the FMS Network.

# Event Manager (FMS)

## Options

Auto Time	15
Teleoperated Time	135
Timeout Time	360

Save Restore Defaults

Force Cleanup Lights On

Force Field Reset Lights On

Force Event Database Backup

Re-calculate Current Rankings

Clear Access Point

Match timing can be adjusted from this screen, for use in such things as test matches. Clicking *Restore Defaults* will return all three fields to their season-specific standards. After adjusting any times as necessary, select *Save* for the timing to take effect. These can only be changed prior to Pre-start.

On the right side of the display, there are options related to common actions that are more readily accessible:

- *Force Cleanup Lights On* - When not in-match, force the purple "cleanup" lights to illuminate and indicate field staff may begin clearing the field. Cannot be used once the green lights are on.
- *Force Field Lights On* - When not in-match, force the green field reset lights to illuminate and indicate "safe to enter" state
- *Force Event Database Backup* - As the name suggests, forces a copy of the event database to be made and written to the USB Drive specified in [Settings](#)
- *Re-calculate Current Rankings* - Runs all teams through the calculator for the given tournament phase (i.e. Qualifications, QuarterFinals, SemiFinals, etc)
- *Clear Access Point* - Remove the team programming from the AP (does not changed the 2.4 GHz radio). Useful in situations where a team needs to connect to their machine, but the AP is currently programmed to their team number (such as between finals matches)

## Status Tab

### Status Tab

	DS	BWU	RADIO	roboRIO	Voltage	Status	Avg Trip	Packets
1 - 1	●	0.001	■	■	13.34	T	3	40213
2 - 2	⊗	0.000	■	■	0.00		0	0
3 - 3	●	0.000	■	■	8.82	T	3	57577
1 - 4	●	0.001	●	■	6.52	T	2	41870
2 - 5	●	0.062	●	●	13.44	T	10	38301
3 - 6	●	0.054	■	●	13.32	E	3	51632

Click on the Status tab shows detailed information for each robot linked to FMS, this information is also displayed on the Field Monitor used by the FTA and FTA Assistant (FTAA). Examples are for Blue Station 1 (team number 1 in this case) but the same data exists for all stations. The information for each team is:

1. Station and Team number (in this case station 1, team number 1)
2. DS:
  - Red square - nothing connected
  - Green circle with X - Indicates if a DS is physically connected to the switch at the SCC
  - Solid green circle - DS is in FMS mode (i.e. connected to FMS)
3. BWU - Indicates the Bandwidth Utilization/Consumption for that particular team (should be under 2-3 for almost all teams, and FRC rules allow a maximum of 7)
4. Radio - Indicates that the DS is able to communicate with the radio on the robot
5. roboRIO - Indicates that the DS is able to communicate with the roboRIO on the robot
6. Voltage - Battery voltage reported by the Robot (12-13 is normally a fully charged battery, under ~9 may result in visible performance problems)
7. Enabled/Mode - The state and mode of the robot.
  - "A" - Autonomous
  - "T" - Teleoperated
  - Red square - robot is disabled
  - Green circle - enabled.
  - Black diamond "E" - Robot is Estopped

## Event Manager (FMS)

- Blank - No Robot connected
8. Avg Trip - average time required to send a message to the robot and have the robot respond (this is basically like a ping.) Units are in milliseconds. Usually under 10 for most Robots.
  9. Packets - indicates the number of packets dropped in the DS-to-Robot link. Typically there are some lost packets. In a very tame wireless environment, this number will be less than 100 (simulated environment results in large value in example photo)
  10. Background Color of Row:
    - "Clear" - Robot connected and ready (or running)
    - Yellow - Robot not connected (Estopped, or any item on the row is "Red", like DS)
    - Brown - Bypassed
  11. The caution marker will appear next to teams that have out of date versions of hardware or software on their robot (such as old roboRIO firmware)

## Score Tab

Game specific field scoring and adjustments.

## Score Tab

The image displays two versions of the FMS Score Tab interface, one in blue and one in red. Both interfaces are designed for referees to input match scores and adjustments. The blue interface shows teams 525, 5929, and 4360, while the red interface shows teams 2500, 7048, and 877. Each interface includes sections for Robot Actions, Endgame, Vault, Switch Seconds, and Rank Points. The Robot Actions section has checkboxes for Auto Run, Parking, and Climbing. The Endgame section has checkboxes for Ownership, Run, and End Game. The Vault section has input fields for Force, Levitate, and Boost. The Switch Seconds section has input fields for Auto, Own @0, and Teleop. The Rank Points section has input fields for AutoQuest, FaceBoss, Foul, Tech Foul, and Adjust. The total score is displayed at the top right of each interface.

The Score Tab is the primary location used to confirm the score of the match prior to Commit Score. The information shown on this tab is input by the Referees using the Touchscreens or by the automated scoring system (except in FMS Off-Season).

Manually editing these values can be done through this interface. The total alliance score is automatically recalculated as these adjustments are made. Values are not editable until after the match is over, because values during the match come from the Referees or automation. In FMS Off-Season, values are editable during the match as there are no Referee panels or real time scores.

In 2018, it isn't possible to edit all values with the in-season official software. Values that are timing based, such as the switches and scales, cannot be edited manually even after the match is over.

**CAUTION:** Off-Season version of FMS will allow you to edit these values, and **does not verify** that the combination is possible. Be careful if you elect to manually score using the score tab that the score is possible and valid before committing!

## Event Manager (FMS)

Documentation will show the Blue Alliance, but the functionality is the same for the Red Alliance. At official FIRST events, all of the data on the score tab comes from automated hardware or certified Referees. The scorekeeper should not edit any values without the supervision and direction of the Head Referee.

**Green Box** - The area of the tab highlighted above in green is where Robot Auto scores will show. As referees input AutoRun, it will highlight here. Each team must have either "None" or "AutoRun" selected before submitting scores.

**Pink Box** - The area of the tab highlighted above in pink is for Robot Endgames. The rows correspond to the same Team number shown in the green box- in this example Team 525 is the top row of both "Auto Run" box and "Endgame" box. Each team must have a selection in Endgame of "None" or "Parking" or "Climbing" before scores are submitted. The Referee entry should reflect what is seen on the field only, as the system will apply any "Levitate" automatically. If a Team is being credited with Levitate, it will show with pink bars around "Climbing" (see the Team 525 line above). A team that is "Climbing" cannot be "Levitate", so if all Robots have been marked "Climbing" and Levitate is played, no team is credited with Levitate (it isn't needed).

**Gold Box** - The area of the tab highlighted above in gold is the Vault. For each Power Up, the quantity of cubes (total and played) is displayed, alongside a Checkbox. A solid yellow square (see "Force" in example) means there is a cube in that position. A black square with a purple border (see Levitate and Boost) means a cube was there during the match at the time the Power Up was played, but there is no cube currently there (or, if match is over, there was no cube there when the match ended). A yellow square with a green border (not shown) means a cube is currently (or, if match is over, was) in that position and was there at the time the Power Up was played. The "Played" checkbox simply reflects if the Power Up was played in the Match or not. Clear is marked if there were no cubes in the column.

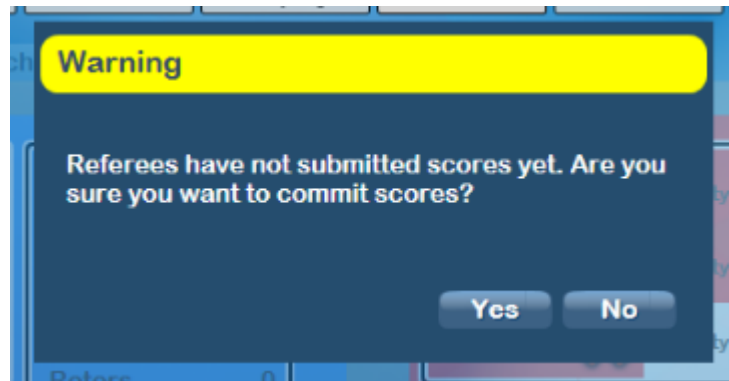
**Yellow Box** - The area of the tab highlighted above in yellow is the times reported on the Switches and Scale. All values in this box are in seconds, and are converted to points by the system. The "Own@0" indicates if the Switch was down in the Alliance's favor at Auto stage T0, which is part of the AutoQuest ranking point.

**Orange Box** - The area of the tab highlighted above in orange is the score summary. All values in this box are in points, converted from the data in the other areas of the Alliance's score tab, **except** for the Foul/TechFoul boxes, which are counts. The ranking points area is always shown, but there are no ranking points in Practice/Playoff/Test matches, so they will always say No. Notice that Foul Pts, written in green, are points credited to the alliance, which means they're calculated off the other alliance's fouls. Changing the Foul/TechFoul counts on a given alliance will change the score of the *opposite* alliance.



## Event Manager (FMS)

### Referee Completion Warning



If a Scorekeeper attempts to Commit a score before the Referees have completed their scoring of the match, a warning dialog will be presented.

### Post-Match Comments

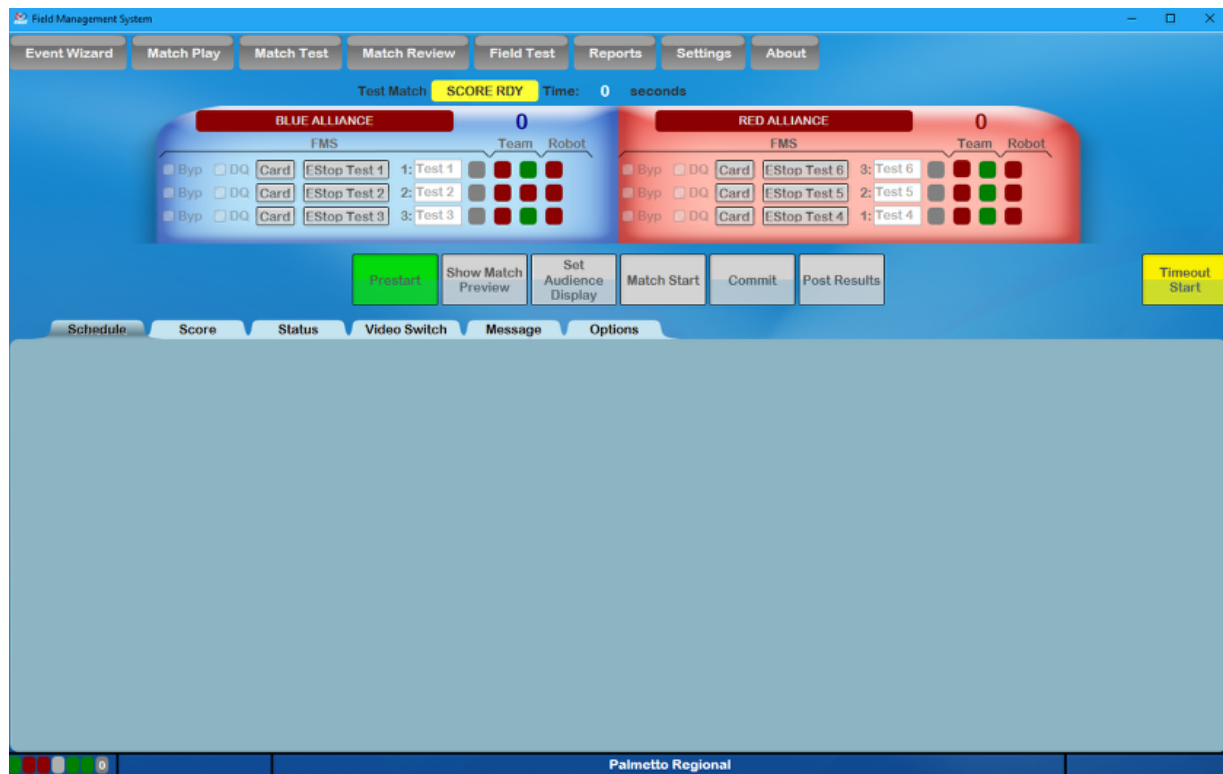


If a match is edited after the clock expires, either by Referees or the Scorekeeper, a comment window is automatically opened when the Commit button is pressed on the FCUI. This box can be used for comments regarding why the score was edited after the match ended, and these comments will be saved and available later, should a review be necessary.

## Match Test

Differences between Match Play and Match Test

## Match Test



The Match Test functionally is nearly identical to Match Play. When using Match Test the FMS automatically assigns the match number to 999 (or 998 for multi-field events) and the team numbers to "Test Robot 1" through 6 and no schedule is displayed. Match Test is used to verify all electrical and scoring components connected to the FMS are operating correctly.

Note that Match Test uses a specific set of WPA Keys for Test Robots 1-6, but will use the corresponding WPA key for a team registered for the event when its number is entered into a Player Station.

## Event Manager (FMS)

The schedule tab will remain blank in Match Test.

Match Test cannot consume a schedule, and therefore cannot be used to play Matches that "count." To play Matches in the Practice/Qual/Playoff schedule, Match Play must be used.

# Game Detail Tab

Game specific field scoring and adjustments.

## Game Detail Tab

Auto Switch Ownership (ms)	00
Auto Scale Ownership (ms)	00
Teleop Switch Ownership (ms)	00
Teleop Scale Ownership (ms)	00
Teleop Switch Ownership Boost (Sec)	0
Teleop Scale Ownership Boost (Sec)	0
Teleop Switch Force (Sec)	0
Teleop Scale Force (Sec)	0

Pre-Match Information - Vault

Force

Levitate

Boost

Vault Ready

No

Auto Switch Ownership (ms)	00
Auto Scale Ownership (ms)	00
Teleop Switch Ownership (ms)	00
Teleop Scale Ownership (ms)	00
Teleop Switch Ownership Boost (Sec)	0
Teleop Scale Ownership Boost (Sec)	0
Teleop Switch Force (Sec)	0
Teleop Scale Force (Sec)	0

Pre-Match Information - Vault

Force

Levitate

Boost

Vault Ready

Yes

Pre-Match Elements

Switch Left Ready

Yes

Scale Ready

Yes

Switch Right Ready

Yes

The Score Detail Tab has detailed scoring information that doesn't directly impact the points granted to an alliance. It is not used in every season.

The upper sections of the Game Details tab, show here with a **green arrow**, relays information about the Switches and Scale during the Match. They are purely for diagnostics, and have no edit functionality. There are separate values for each alliance.

The middle section, show here with a **pink arrow**, relays information about the Vault. It can be used to see when there may be cubes in a vault, which would prevent a match from starting. Each Yellow block indicates a cube, in this example there are two cubes in the Force column. There is a "Vault Ready" indicator (see **pink box** above) that gives an overall yes/no for each Vault.

On the bottom, in the middle, there is a Pre-Match Elements section, shown here with an **orange arrow**, that provides an overall state of the Switches and Scale. They will indicate Yes/No as an overall readiness status. If any value is No, the match will not be allowed to start.

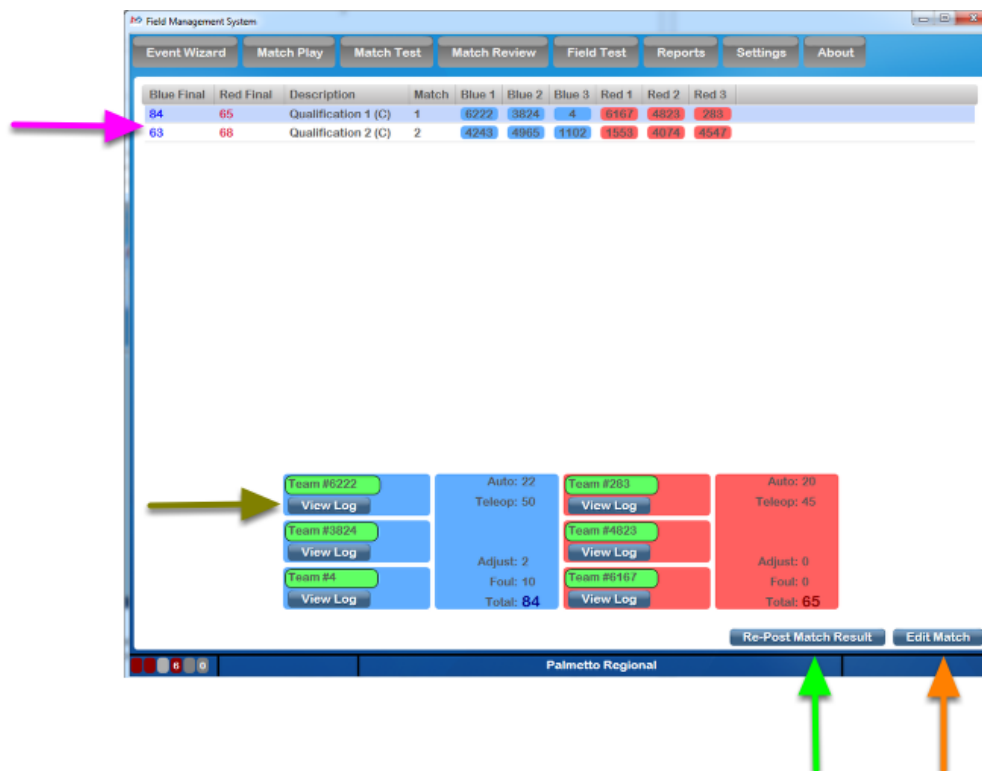
## Event Manager (FMS)

The Vault and Elements data is not available (and hides) from Match Start until the following Pre-Start is complete.

# Match Review

## Match Review

### Window



The Match Review interface is used to review all match history for the currently active schedule. Match Review allows the Scorekeeper to edit the results of matches to ensure team rankings and advancement are calculated correctly. The buttons and info on the lower portion of the display depend on the selected match. Click a match, or use the arrow keys, to change which match is currently selected.

[*Pink Arrow*] Only completed matches are displayed, un-played or canceled matches are not visible in Match Review. Final scores, match info and team numbers are all available

[*Gold Arrow*] Pressing the "View Log" button under a given team will show their detailed statistics for that match

[*Green Arrow*] Re-posting the match result will trigger the Audience Display to show the results of the selected match (especially useful after making an edit)

## Event Manager (FMS)

[[Orange Arrow](#)] Edit the selected match, should only be done under the guidance and supervision of FTA/Head Referee



# Edit Match

Fix scores from a given match.

## Match Edit



Match Reviews' Edit Match functionality provides all the relevant information for a match; all scoring elements, total calculated score, foul points, etc. Check boxes indicate if the DQ option was used, and the color in the drop-down under each team number indicates if that team received a Yellow or Red Card during the match.

If editing is necessary, simply change values within the interface on the left side of the screen. The blue alliance scoring actions will always be on top, with a blue background. The red alliance scoring actions will always be on bottom, with a red background. The scores/rankings will be immediately

## Event Manager (FMS)

recalculated on save. If any edits are made, a comment with the reasons is required, and this information is reported to *FIRST* HQ.

On the right side of the screen, a history of edits is displayed. With the most recent on top, the "Changelog" will list all edits and comments as they were entered. If a comment was added before commit, it will be listed next to the "Edited Initial" purple title on the Changelog.

Changes made in Match Review take effect immediately once they are saved, and cannot be reversed (without opening and manually undoing the edits). In the Playoffs, matches cannot be edited once that level of the Playoffs is over (i.e. Quarterfinals are locked once the Semifinals have started).

Clicking Cancel will close with window with no changes being saved.

# Event Manager (FMS)

## View Log

View detailed log information about a given team in a given match.

## View Log

Field Management System

Event WizardMatch PlayMatch TestMatch ReviewField TestReportsSettingsAbout

Match Log

Match 2 - Team 4 - Blue Station1

Timestamp	Time	Mode	DS Link	Enabled	Estop	Robot Lnk	Radio Lnk	RIO Lnk	Avg Trip	Missed Pkt	Bat V	SS	SQ	BWU
10:51:08 AM	5	TeleOp	True	False	False	False	False	False	2	1442	13.36	0	0	0.009
10:51:09 AM	5	TeleOp	True	False	False	False	False	False	2	1467	13.36	0	0	0.009
10:51:09 AM	5	TeleOp	True	False	False	False	False	False	2	1493	13.36	0	0	0.011
10:51:10 AM	5	TeleOp	True	False	False	False	False	False	2	1518	13.36	0	0	0.013
10:51:11 AM	5	TeleOp	True	False	False	False	False	False	2	1568	13.36	0	0	0.017
10:51:11 AM	5	TeleOp	True	False	False	False	False	False	2	1594	13.36	0	0	0.018
10:51:12 AM	5	TeleOp	True	False	False	False	False	False	2	1619	13.36	0	0	0.016
10:51:13 AM	5	TeleOp	True	False	False	False	False	False	2	1670	13.36	0	0	0.012
10:51:13 AM	5	TeleOp	True	False	False	False	False	False	2	1695	13.36	0	0	0.012
10:51:14 AM	5	TeleOp	True	False	False	False	False	False	2	1721	13.36	0	0	0.013
10:51:15 AM	5	TeleOp	True	False	False	False	False	False	2	1771	13.36	0	0	0.01
10:51:15 AM	5	TeleOp	True	False	False	False	False	False	2	1797	13.36	0	0	0.008
10:51:16 AM	5	TeleOp	True	False	False	False	False	False	2	1823	13.36	0	0	0.006
10:51:16 AM	5	TeleOp	True	False	False	False	False	False	2	1842	13.36	0	0	0.006
10:51:17 AM	5	TeleOp	True	False	False	False	False	False	2	1873	13.36	0	0	0.004
10:51:17 AM	4	TeleOp	True	False	False	False	False	False	2	1898	13.36	0	0	0.004
10:51:18 AM	4	TeleOp	True	False	False	False	False	False	2	1923	13.36	0	0	0.007
10:51:18 AM	3	TeleOp	True	False	False	False	False	False	2	1949	13.36	0	0	0.007
10:51:19 AM	3	TeleOp	True	False	False	False	False	False	2	1974	13.36	0	0	0.005
10:51:19 AM	2	TeleOp	True	False	False	False	False	False	2	2000	13.36	0	0	0.005
10:51:20 AM	2	TeleOp	True	False	False	False	False	False	2	2025	13.36	0	0	0.005
10:51:20 AM	1	TeleOp	True	False	False	False	False	False	2	2050	13.36	0	0	0.005
10:51:23 AM	5	TeleOp	True	False	False	False	False	False	2	2177	13.36	0	0	0.003
10:51:23 AM	5	TeleOp	True	False	False	False	False	False	2	2197	13.36	0	0	0.003
10:51:23 AM	5	TeleOp	True	False	False	False	False	False	2	2203	13.36	0	0	0.003
10:51:24 AM	5	TeleOp	True	False	False	False	False	False	2	2227	13.36	0	0	0.003
10:51:24 AM	4	TeleOp	True	False	False	False	False	False	2	2253	13.36	0	0	0.003
10:51:25 AM	4	TeleOp	True	False	False	False	False	False	2	2278	13.36	0	0	0.003
10:51:25 AM	3	TeleOp	True	False	False	False	False	False	2	2304	13.36	0	0	0.003
10:51:26 AM	3	TeleOp	True	False	False	False	False	False	2	2329	13.36	0	0	0.004
10:51:26 AM	2	TeleOp	True	False	False	False	False	False	2	2355	13.36	0	0	0.004

Close

0

Offseason Z

Clicking on the “View Log” button below each team number opens a viewer which gives detailed logging information of the team during that particular match. The FMS records data every 500ms for each team, during each match. Details include Mode (Auto or Teleop), DS Link, E-stop condition, and if the robot was enabled or disabled, battery voltage, radio signal level, radio signal-to-noise ratio, and bandwidth usage. Click Close to return to the Match Review screen.

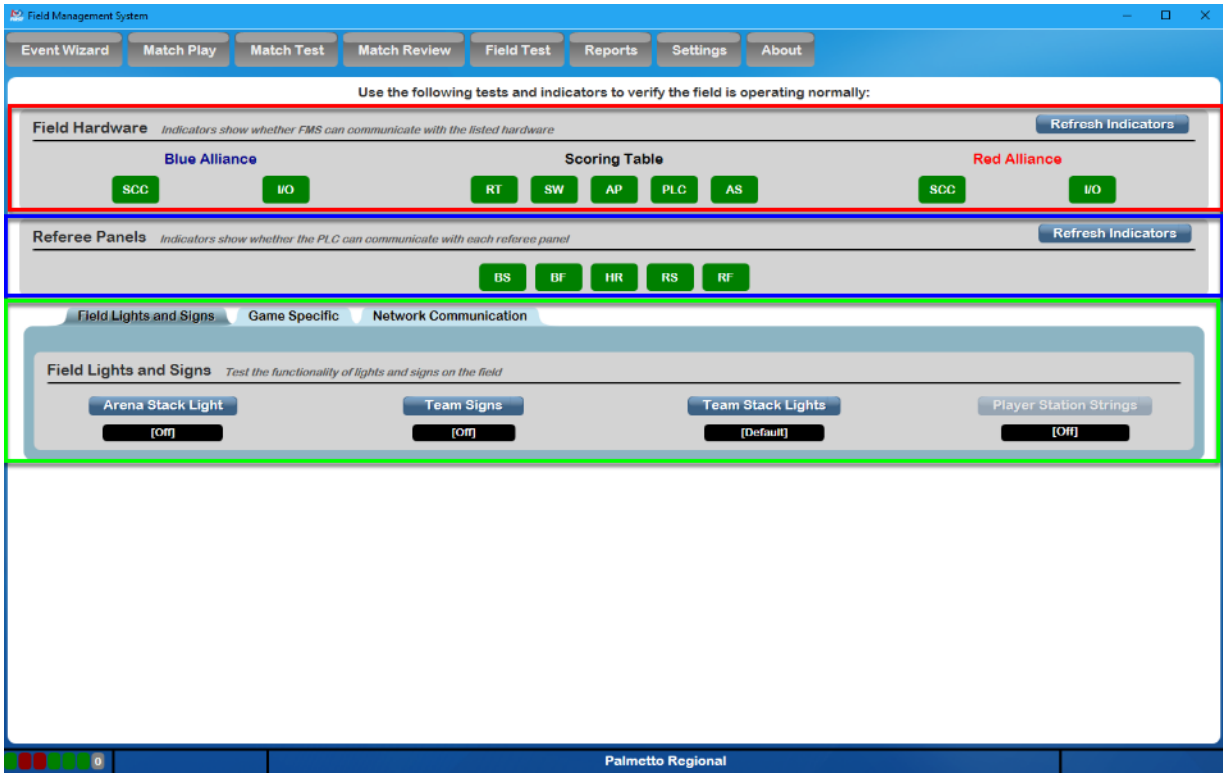
Data shown in the viewer is the same as the data available through the FMS Web Portal.

# Field Test

# Field Test

Test the functionality of the field and preparedness for the event matches.

## Field Test



Field Test is used as an initial basic test of the field electronics. Use this interface to verify that all the LED Displays, Team Lights, and scoring hardware are connected. Field Test is also used to confirm the network connection to the Audience Screen and to the Internet. After Field Test, a full Match Test should be used to confirm all elements are behaving as expected in-match. In FMS Off-Season, the Field Test screen is not accessible.

[Red - Field Hardware]

# Event Manager (FMS)

This panel shows the connection status of the hardware at the corresponding areas of the playing field; Blue Alliance end, Scoring Table, and Red Alliance end. Green indicates a successful connection. Use "Refresh Indicators" to update these indicators.

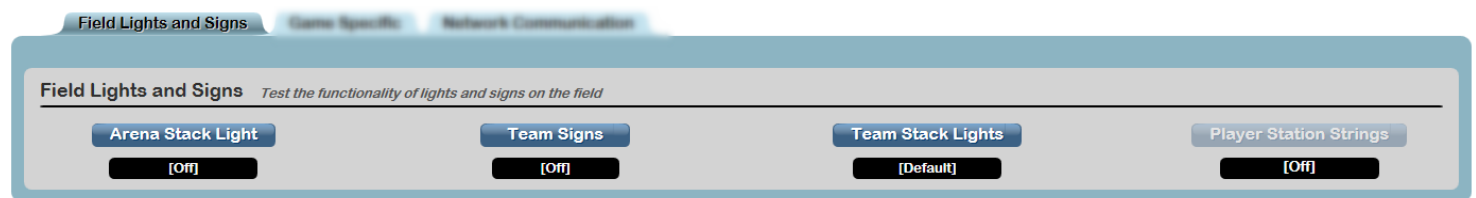
## [Blue - Referee Panels]

This panel show the connection to each of the Referee touchscreens. A successful connection is shown via a green indicator.

## [Green - Individual Hardware]

See Below

## Field Test - Lights and Signs

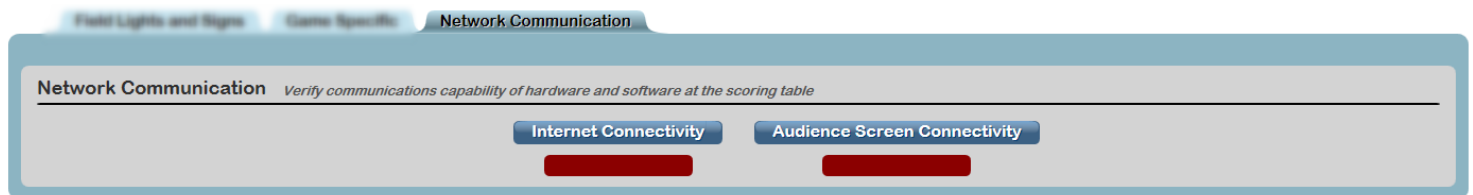


This panel is used to test the LED panels, the Stack Lights, and the LED light strings.

- Arena Stack Light tests each light in the stack at the Scoring Table
- Team Signs has two modes to test the connection to the LED displays in the Player Stations
  - Test Pattern alternates between the test values for Alliance Station number (Blue 1 = 1, Blue 2 = 2, Blue 3 = 3, Red 1 = 4, Red 2 = 5, Red 3 = 6) and Timer (9) and all "8888".
  - Awards Mode all displays show current year
- Team Stack Lights turns on each Stack Light in the corresponding Player Station
  - *NOTE: this will not turn on the amber lights which indicate E-stop. E-stop lights only turn on when the E-stop in the corresponding Player Station is pushed, or the Arena E-stop is pressed*
- Player Station Strings will, if in use, cycle the possible lighting options of the strings as they appear in the game. These are not in use in 2017.

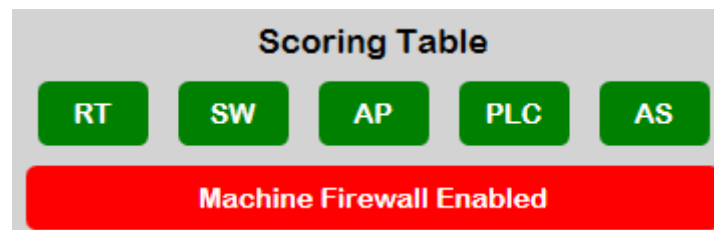
# Event Manager (FMS)

## Field Test - Network Communication



- Internet - confirm an active connection to the Internet (specific ports and procedures)
- Audience - test connection between FMS and Audience Screen program. The indicator turns green and the match start sound is played if the connection is made. The Audience Screen program must be running for this to be successful. A connection made to ANY audience screen will provide a "success" (such as if multiple are running on the network) and it is not guaranteed that all audience screen instances would play the sound. This **SHOULD NOT** be used as a sound test, use the audio test buttons within the [Audience Screen](#) for sound tests

## Field Test - Hardware Warnings

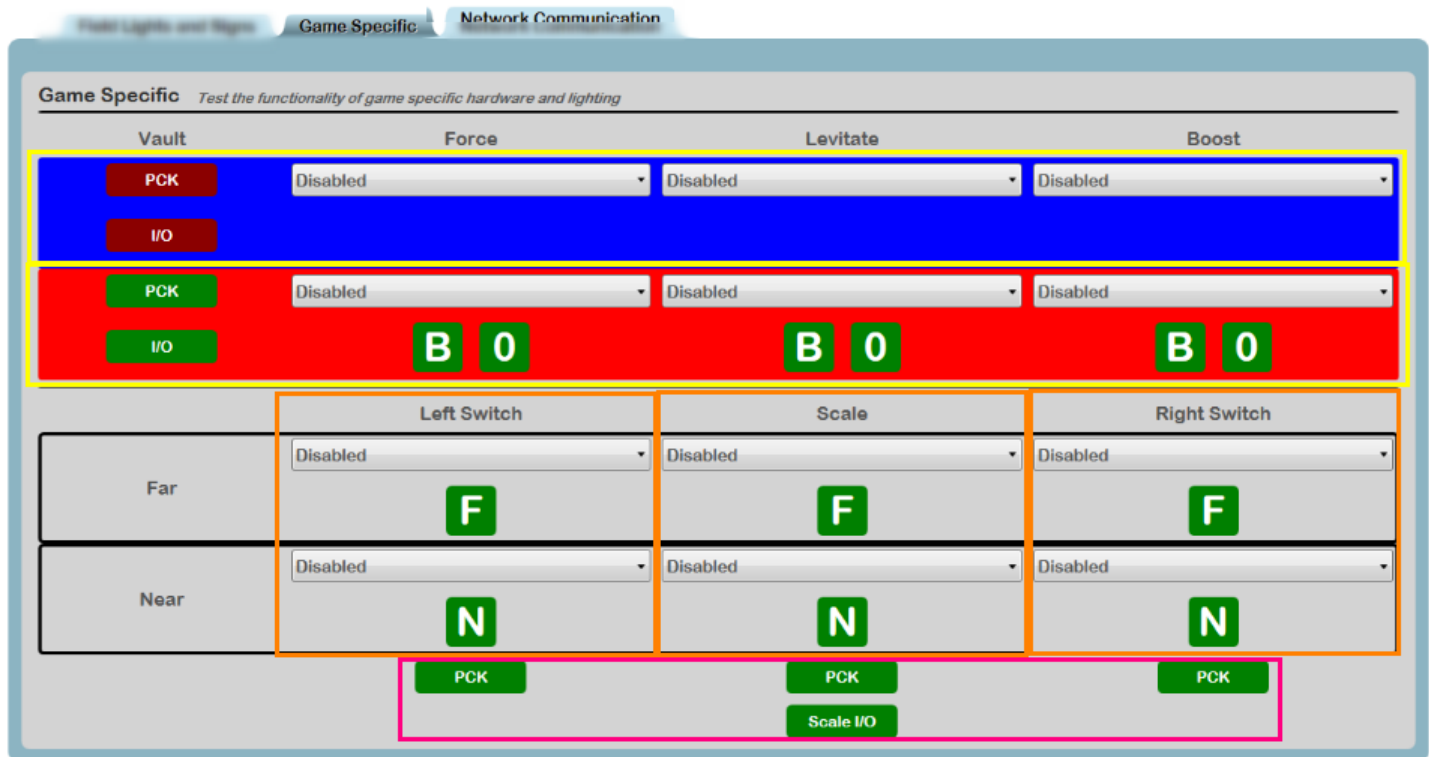


Warnings can appear under the "Scoring Table" section near the top of the Field Test screen. There are three possible warnings:

- Machine Firewall Enabled (pictured) - Having the firewall enabled can cause problems when FMS attempts to communicate status data to the Driver Stations. At an official event, contact support if this message is displayed.
- Spare Infrastructure Hardware on Network (not pictured) - The system has noticed spare hardware (e.g. SCC) on the network. No action needed, just a warning.
- Spare Game-Specific Hardware on Network (not pictured) - The system has noticed spare game specific hardware (e.g. auxiliary control cabinet) on the network. No action needed, just a warning.

# Event Manager (FMS)

## Field Test - Game Specific



You must use the "Refresh Indicators" button to update the colored status indicators on this tab.

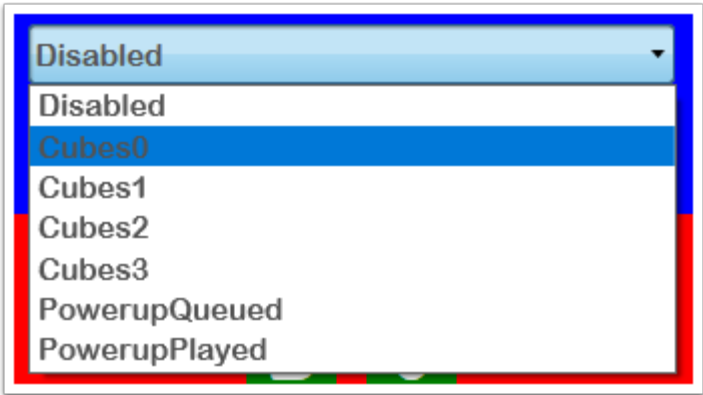
### [Vaults (Yellow Boxes)]

- PCK - Green background indicates communication with the lighting controller inside the Vault, Red indicates failure
- I/O - Green background indicates communication with the automation controller inside the Vault, Red indicates failure
- Force / Levitate / Boost Drop-down boxes
  - See the image below for possible values. For the selected value, the light pattern is played on the position in the Vault. *Note that for Levitate, there is no "Queued" state.*
- "B" - When the background turns Red, the corresponding button is actively being pressed. These do not latch, they indicate the live button push status on that column of the Vault.
- "0" - This integer will change to indicate how many Power Cubes are currently detected in the corresponding column of the Vault. The background color does not change.



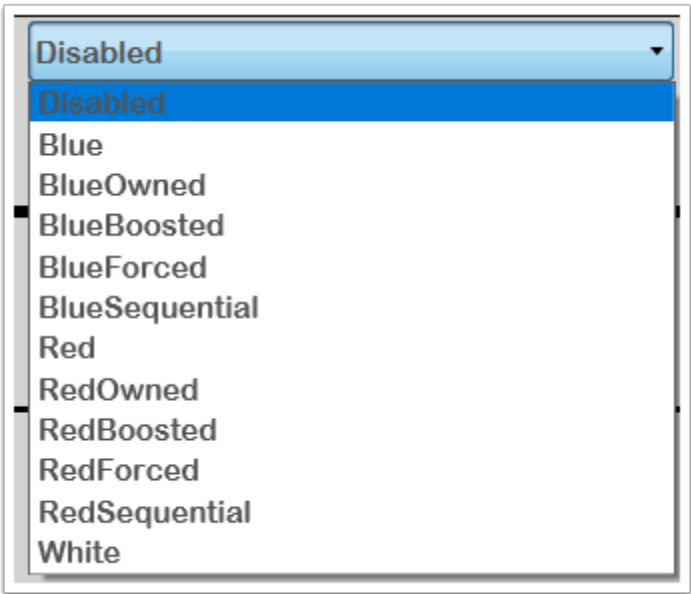
# Event Manager (FMS)

If the Vault is not detected (such as the Blue Vault above), the "B" and "O" indicators will all be hidden.



## [Switch and Scale (Orange Boxes)]

- "F" and "N" - The background will turn Red when the far (audience side) and near (scoring table side) sensors are blocked (either by the scale/switch being tipped, a hand, etc)
- Drop-down boxes can be used to test the possible light patterns. See the image below for possible values.



## [Scale Switch Hardware (Pink Box)]

- PCK - Green background indicates communication with the lighting controller inside the corresponding column, Red indicates failure

## Event Manager (FMS)

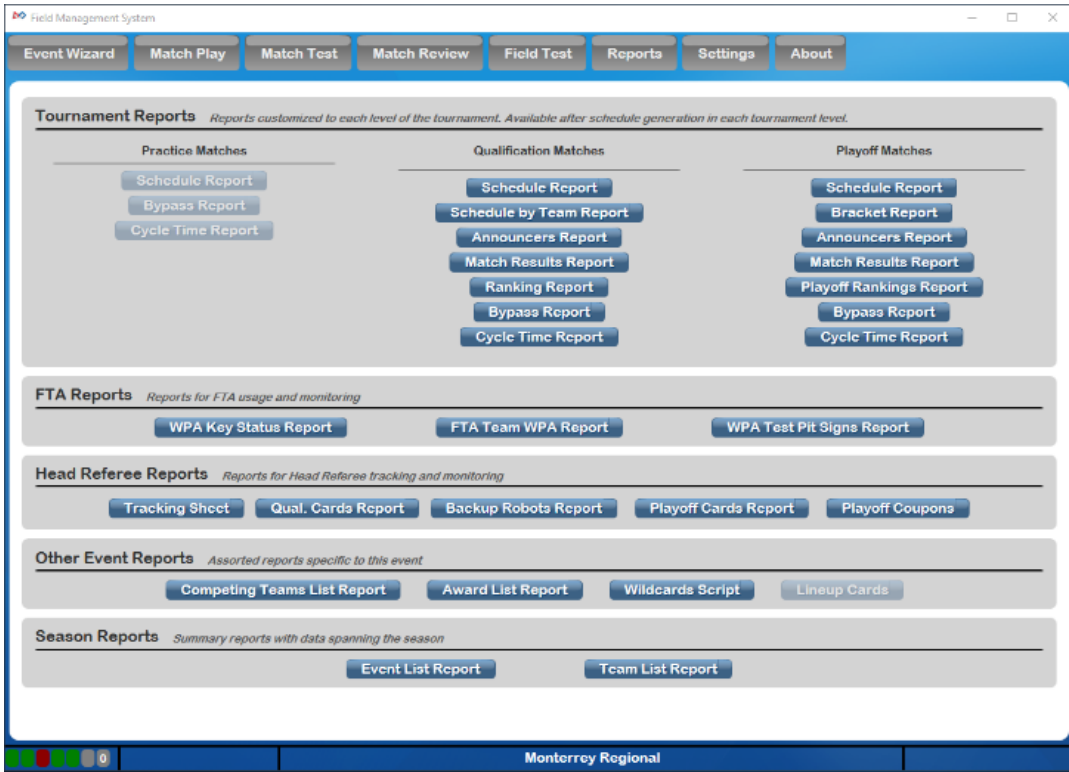
- Scale I/O - Green background indicates communication with the automation controller inside the Scale (which also manages the Switches), Red indicates failure

# Reports

# Reports

Retrieve event information through formatted reports.

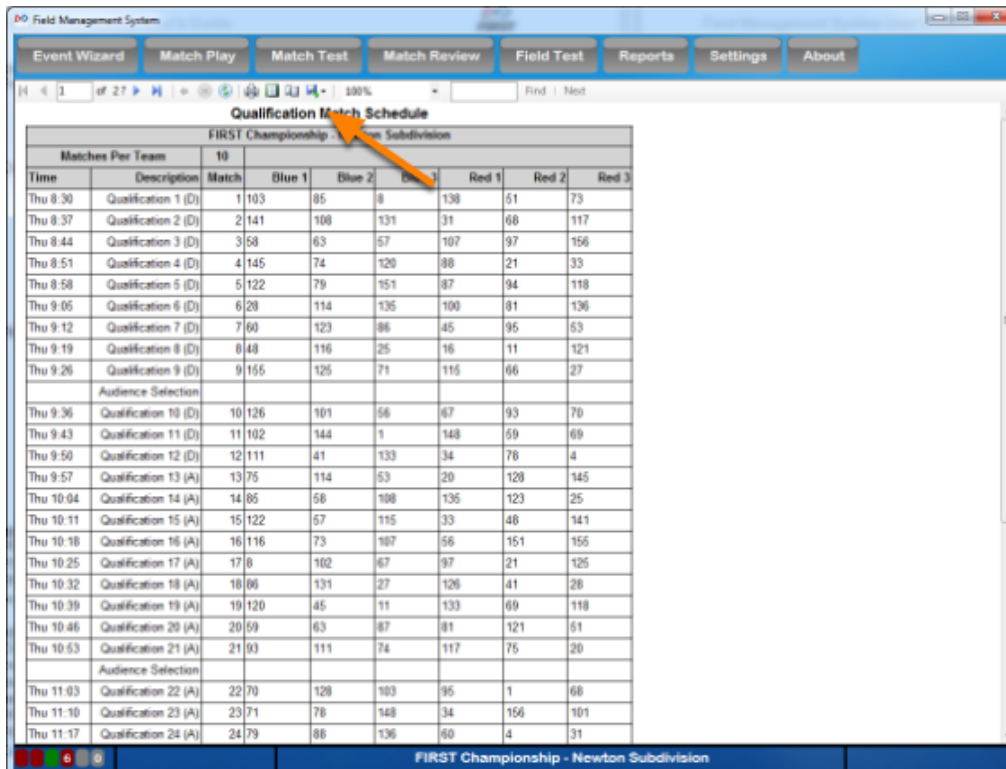
## Menu



The Reports screen is used to generate printable reports needed throughout the tournament. Once a report has been generated, several options are available to the user. Printing options can be selected as well as a file-export feature. Reports can be exported in Microsoft Excel, Word, or PDF file formats.

# Event Manager (FMS)

## Example Report



Time	Description	Match	Blue 1	Blue 2	Blue 3	Red 1	Red 2	Red 3
Thu 8:30	Qualification 1 (D)	1 103	85	8	138	51	73	
Thu 8:37	Qualification 2 (D)	2 141	108	131	31	68	117	
Thu 8:44	Qualification 3 (D)	3 58	63	57	107	97	156	
Thu 8:51	Qualification 4 (D)	4 145	74	120	88	21	33	
Thu 8:58	Qualification 5 (D)	5 122	79	151	87	94	118	
Thu 9:05	Qualification 6 (D)	6 28	114	135	100	81	136	
Thu 9:12	Qualification 7 (D)	7 60	123	86	45	95	53	
Thu 9:19	Qualification 8 (D)	8 48	116	25	16	11	121	
Thu 9:26	Qualification 9 (D)	9 155	125	71	115	66	27	
Thu 9:36	Audience Selection							
Thu 9:36	Qualification 10 (D)	10 126	101	56	67	93	70	
Thu 9:43	Qualification 11 (D)	11 102	144	1	148	59	69	
Thu 9:50	Qualification 12 (D)	12 111	41	133	34	76	4	
Thu 9:57	Qualification 13 (A)	13 75	114	53	20	120	145	
Thu 10:04	Qualification 14 (A)	14 85	56	108	135	123	25	
Thu 10:11	Qualification 15 (A)	15 122	57	115	33	48	141	
Thu 10:18	Qualification 16 (A)	16 116	73	107	56	151	155	
Thu 10:25	Qualification 17 (A)	17 8	102	67	97	21	125	
Thu 10:32	Qualification 18 (A)	18 86	131	27	126	41	28	
Thu 10:39	Qualification 19 (A)	19 120	45	11	133	69	118	
Thu 10:46	Qualification 20 (A)	20 59	63	87	81	121	51	
Thu 10:53	Qualification 21 (A)	21 93	111	74	117	75	20	
Thu 10:53	Audience Selection							
Thu 11:03	Qualification 22 (A)	22 70	128	103	95	1	68	
Thu 11:10	Qualification 23 (A)	23 71	78	148	34	156	101	
Thu 11:17	Qualification 24 (A)	24 79	88	136	60	4	31	

An example report, showing the Qualification Schedule from an event. Report could be formatted (although default formatting should be sufficient) and then printed or saved from this interface using the buttons on the bar indicated above.

## Available Reports

### Tournament Level Reports:

- Practice Tournament
  - *Schedule*: Current active match schedule
  - *Cycle Time*: This report shows the actual time between match starts
  - *Bypass*: This report shows which teams have been Bypassed during the currently active match schedule
- Qualification Tournament

# Event Manager (FMS)

- *Schedule*: Current active match schedule
- *Schedule By Team*: Current active match schedule, sorted by team
- *Announcer's Report*: detailed report all team details for each match
- *Match Results*: Final scores of all completed matches in the currently active schedule
- *Ranking*: Current ranking of all teams as the event
- *Bypass*: This report shows which teams have been Bypassed during the currently active match schedule
- *Cycle Time*: This report shows the actual time between match starts
- Playoff Matches
  - *Schedule*: Current active match schedule
  - *Bracket*: Tournament bracket
  - *Announcer's Report*: detailed report all team details for each match
  - *Match Results*: Final scores of all completed matches in the currently active schedule
  - *Playoff Rankings Report*: Shows the playoff alliances in rank order within the current playoff level and with their ranking detail
  - *Bypass*: This report shows which teams have been Bypassed during the currently active match schedule
  - *Cycle Time*: This report shows the actual time between match starts

## FTA Reports:

- *WPA Key Status Report*: shows if teams have linked or played in matches successfully
- *FTA Team List WPA*: Same as *WPA Key Status Report*, but with WPA keys shown. Requires FTA password to run.
- *WPA Test Pit Signs Report*: Generates one page per team that has not yet connected to the field, to place in the team's pit or distribute as reminder

## Head Referee Reports:

- *Tracking Sheet*: A sheet used by Head Referees for tracking information throughout the event. Head Referee may request a copy from the Scorekeeper.
- *Qual. Cards*: Match schedule showing teams with assigned cards during Qualification matches
- *Backup Robots*: Report for teams to accept or decline their position as a backup robot
- *Playoff Cards*: Match schedule showing alliances with assigned cards during Playoff matches
- *Playoff Coupons*: Timeout and Backup coupons for Playoffs (includes Team numbers)

## Other Event Reports:

- *Competing Teams List Report*: Same as the Season Team List, but filtered to only the teams competing at the currently selected event

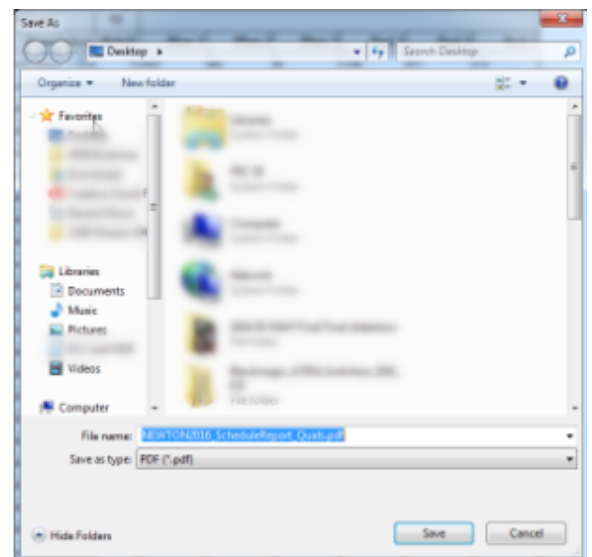
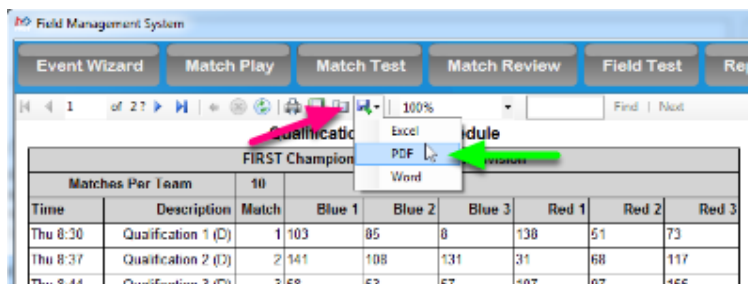
# Event Manager (FMS)

- *Awards List*: A list of the awards to be given out at the event. The winners are included if they have been assigned.
- *Wildcards Script*: Script for Announcer's should any team generate a Wildcard at the event
- *Lineup Cards*: Lineup sheets for events using the "4 team alliances" playoff style (*FIRST* Championship)

## Season Reports:

- *Event List*: A complete list of all FRC events in the current season (including those manually added events in FMS Off-Season)
- *Team List*: A complete list of all registered FRC Teams for the given season

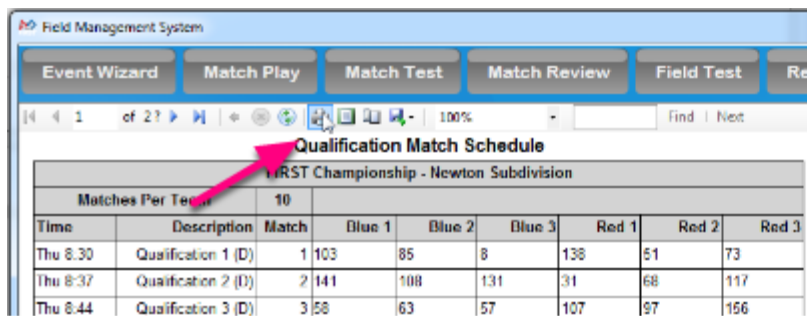
## Exporting Reports



To export a report (such as providing an Excel version to a Judge Advisor), first, select the floppy disk icon (pink arrow) on the bar above the report name. Second (green arrow) select the file format you wish to export. Selections can be Microsoft Excel (XLSX), Adobe PDF (PDF) or Microsoft Word (docx). This will (after a short "working" indicator) bring up the standard Windows save dialog where you can select the location to export the report.

# Event Manager (FMS)

## Printing Reports



Field Management System

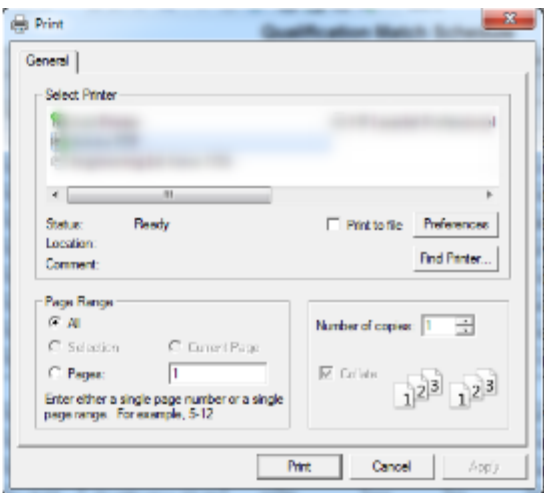
Event Wizard Match Play Match Test Match Review Field Test Re

1 of 2 100% Find Next

**Qualification Match Schedule**

VRST Championship - Newton Subdivision

Time	Description	Match	Blue 1	Blue 2	Blue 3	Red 1	Red 2	Red 3
Thu 8:30	Qualification 1 (D)	1	103	85	8	138	51	73
Thu 8:37	Qualification 2 (D)	2	141	108	131	31	68	117
Thu 8:44	Qualification 3 (D)	3	58	63	57	107	97	156



Print

General

Select Printer

Status: Ready ☐ Print to file Preferences

Location: Find Printer...

Comment:

Page Range

☒ All ☐ Selection ☐ Current Page

Pages: 1

Enter either a single page number or a single page range. For example, 5-12

Number of copies: 1

☒ Collate 1 2 3 1 2 3

Print Cancel Apply

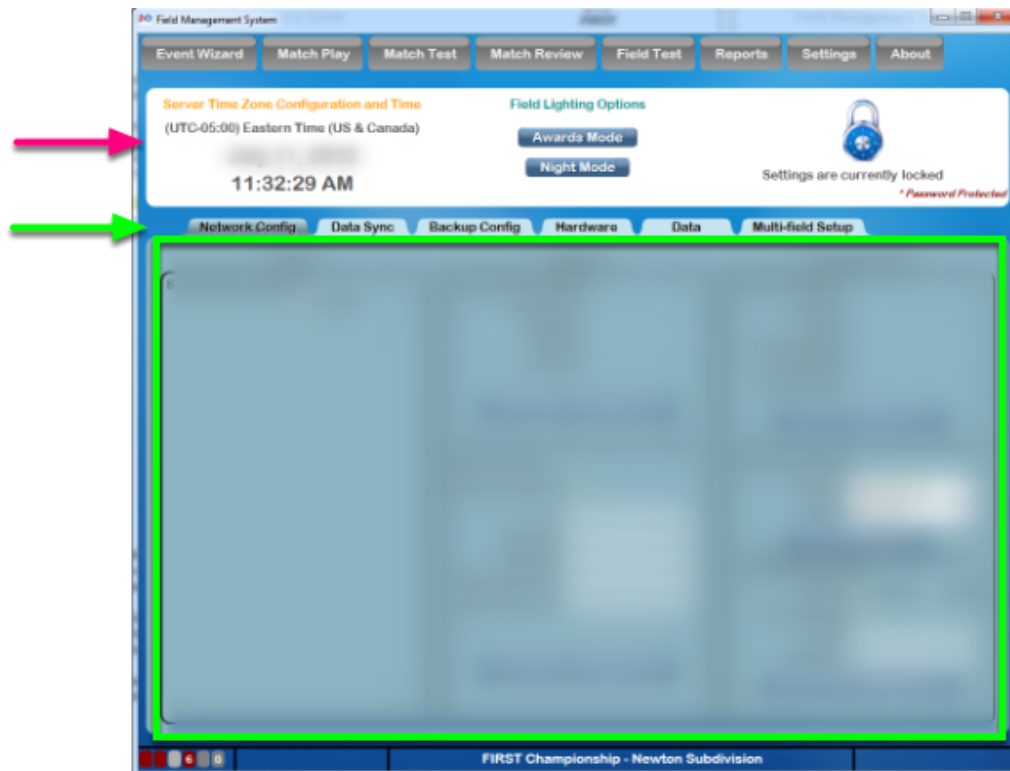
Print reports by selecting the **printer icon** on the bar above the report name. This will bring up the standard Windows print dialog (right) where the report can be printed.



# Settings

## Settings Menu

### Menu



The settings screen contains important global settings for network, hardware, backup, and data configurations within the FMS Software. Some items within the Settings screen may be used by Scorekeepers and FTAs, such as Backup Configuration, some network settings, spare hardware configuration, and others. However, some of the items are protected via a Settings Lock and can only be unlocked by FRC Engineering staff. These items are deemed "Critical" (as in the case of AP channel configuration or changing the Data Sync state) or "Experimental" (as in the case of purging tournament data). Items within the Settings page that are protected by the Settings Lock are followed by an asterisk (\*). In the Off-Season version of the software the Settings are permanently unlocked though some features (such as hardware configuration or Data Sync) are disabled because they do not apply.

The top bar of the Settings Page (pink arrow), encompassed with a white background, contains quick-access information and commonly used tools. On the far-left is the current server time information, including the currently active time zone. It is important that the time zone of the

## Event Manager (FMS)

server be set correctly for the location the event is being held, especially if the event will have schedules and data available online. In the center are quick-access field lighting settings; Awards Mode will enable all LEDs on the field (to match their alliance color) and display the current year on the Team Signs, whereas Night Mode will turn all LEDs on the Field off. Finally, clicking the Lock icon will allow the Settings Lock to be disabled once a password is entered. To lock, click on the Lock icon again or navigate to a page away from the Settings page.

Below the bar is a series of settings tabs (**green arrow**). Clicking these tabs will change which data is available on the lower portion of the screen (**green box**). Information about each tab can be found in its associated documentation step.

# Network Config

## Config

The Network Config tab on the Settings page contains all of the network settings that may be adjusted for the FMS hardware and software. The Network Config tab is the default tab on the Settings Page. It has three sections: Field/Stats, Router, and Access Point.

[**Red** - Router] Contains functions for getting and setting the Router configuration within the FMS Hardware set. Get Router Configuration will query the router settings from the built-in Router within the FMS “Scorpion” server, and display them. Set Router Configuration can be used to configure the router settings for venue-specific network access configuration. Do not change the settings on the Router without FTA and/or FRC Engineering support.

[**White** - Access Point] Provides functions for getting and setting configuration information for the Access Point used by FRC. Get AP Configuration gets the current Access Point configuration and displays it. Set AP Channel changes the 2.4 GHz or 5GHz channel (and its frequency width for 5

## Event Manager (FMS)

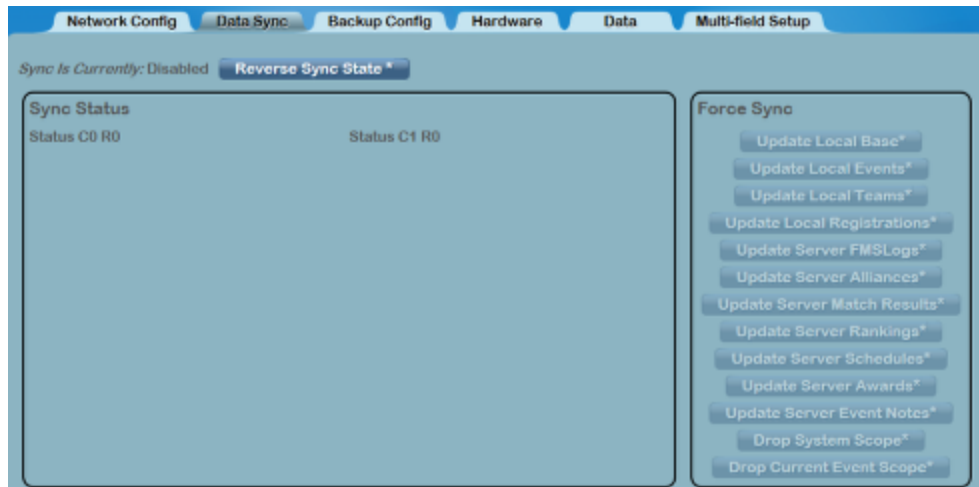
GHz). Finally, Set AP WiFi Configuration will set the 2.4GHz SSID and WPA key configuration within the AP.

The SSID and WPA Key is configurable by the FTA without a password, but once set the WPA Key value will not persist once the software navigates away from the Settings page. If the WPA Key is forgotten, a new one must be set by the FTA.

To change the type of Router or Access Point in use, visit the [Hardware](#) tab.

# Data Sync

## Sync



The Data Sync tab is used to monitor and control syncing tournament data to the *FIRST* servers; the functions and settings in this tab are protected using the Settings Lock. It is important to ensure that for off-season events not authorized to sync data to *FIRST* the Sync Setting is DISABLED. If this setting is ENABLED, CPU and network resources are consumed attempting to upload tournament data to *FIRST* servers and may cause delays or errors while running the event.

Beyond the toggle button, status information is displayed for use by FRC Engineering when performing advanced sync related tasks- it's not useful to (or available to) the end user.

# Backup Config

## Config



The Backup Config tab provides facilities to set a data backup location and manually force backups to occur. Backups should be set to an off-system USB storage location using the “Browse” button (1) to select the location. The currently selected location will be shown in the text box to the left of the Browse button.

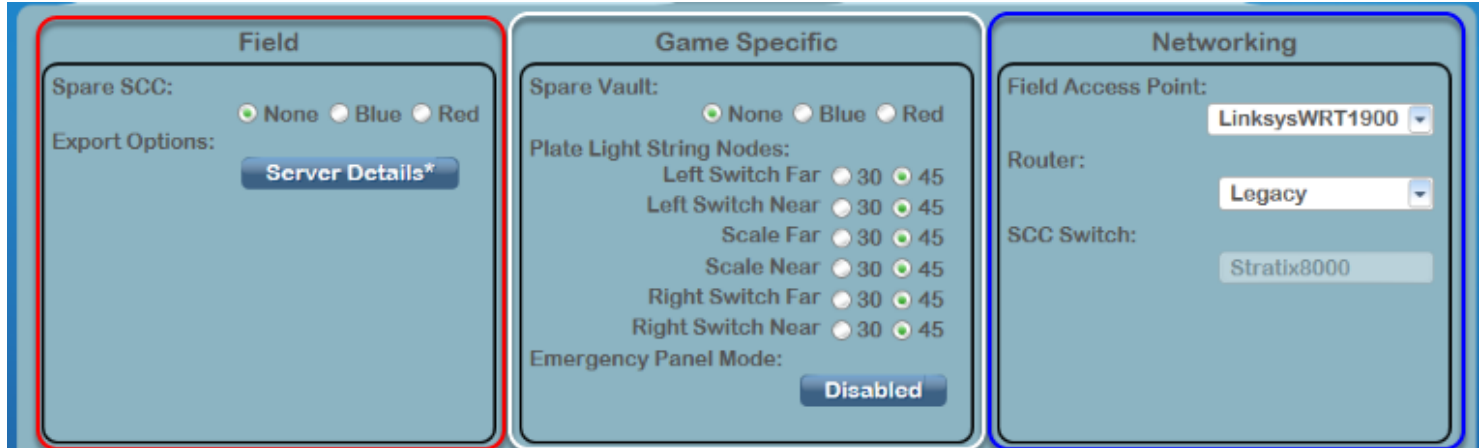
The backup is used when uploading event archives to FIRST, so it’s important to check the backup location in the event of an upload failure (it may be a full location or unavailable). It’s also important to keep an eye on the [indicator at the bottom](#) of FMS that indicates the backup status; a gray or red status indicator shows that there’s a problem with the backup and should be corrected immediately, a gray status indicator shows the backup is working.

The “Force Event Backup” button (2) is used to manually force a backup for Event-Specific data (such as Match Results, Match Logs, and Tournament Progress). The “Force System Backup” button (3) is used to manually force a backup for System-Specific data (such as Event Lists, Team Data, and system configuration data).

As backups are performed, the times of the latest of each type are shown next to their names.

# Hardware

## Hardware



The Hardware tab is divided into three sections: Field, Game Specific, and Networking.

- Field:** Includes Spare SCC (None, Blue, Red) and Export Options (Server Details\*).
- Game Specific:** Includes Spare Vault (None, Blue, Red), Plate Light String Nodes (Left Switch Far, Left Switch Near, Scale Far, Scale Near, Right Switch Far, Right Switch Near) with 30 and 45 node options, and Emergency Panel Mode (Disabled).
- Networking:** Includes Field Access Point (LinksysWRT1900), Router (Legacy), and SCC Switch (Stratix8000).

The Hardware tab is used to indicate the use of specific hardware provided for the field. Because configurations are different when using spare hardware, the FMS needs to know the locations and other information of the hardware. Only one spare component of each type is allowed to be used on a field; the spare component is generally marked with White or Black gaffer's tape on the handle/front, whereas the normal component is generally marked with a Red or Blue (alliance-colored) piece of gaffer's tape. The layout of the tab is similar to the [Network Config](#) tab.

[**Red** - Field] Contains configuration options for the Spare SCC (field ends or not in use). The Export Server Details button provides FRC Engineering with a full system configuration output to better help troubleshoot configuration problems.

[**White** - Game Specific] Contains configuration options for the Spare (Purple) Vault as well as the Plate Light strings. Light strings can vary by truck, most trucks use 30 node strings. Emergency Panel Mode should only be used under direction of FRC Engineering.

[**Blue** - Networking] Contains configuration options for the type of Access Points, Routers and SCC Switches in use (for FRC Engineering use)

- The "SCC Switch" displays the version of SCCs that are in use on the field. While not selectable, you may be asked by FMS Engineering to provide this information during troubleshooting. If this box says "Unknown", you'll be unable to run matches.



# Event Manager (FMS)

## Data

Experimental data manipulation options, which should only be executed under the supervision of FRC Engineering.

### Event Level



- [Red] Purge an entire event, all match and alliance data
- [White] Purge just the alliances from an event
- [Blue] Undo any participants added manually, and return the registration list to its state as downloaded from HQ
- [Green] Undo all award assignments, return the awards to their default (unassigned) state

### Tournament Level

Level	Schedule Exists	Matches Played	# Ranking Records	Purge
Practice	Yes	0		Purge Practice *
Qualification	Yes	33	75	Purge Quals *
Playoffs	Yes	15	8	Purge Playoffs *

- [Level Column] The level being referenced by that data row
- [Schedule Exists Column] Yes/No of whether the schedule has been generated (schedule plus alliance pairings)
- [Matches Played Column] Count of the number of matches played in that level

## Event Manager (FMS)

[# *Ranking Records Column*] The number of Qualification ranking records that exist, or, for Playoffs, the number of alliance ranking records that exist

[*Purge Column*] Purge the given level, such that all matches and logs are deleted. This cannot be undone.

### Detail Level

The screenshot shows a web interface with a light blue background and horizontal dividers. It contains three main sections:

- Purge Individual Match:** Features a "Purge" dropdown menu set to "Test", a "Match Number" input field with the value "0", and a blue button labeled ">> Go\* >>".
- Reassign Match Result:** Features an "Assign From" dropdown menu, a "to" dropdown menu, and a blue button labeled ">> Go\* >>".
- Truncate Qual Schedule:** Features a "Down to \_\_ Matches Per Team:" input field with the value "0", and a blue button labeled ">> Go\* >>".

[*Purge Individual Match*] By selecting a tournament phase and entering a match number, dump only one specific match from a level (all plays lost)

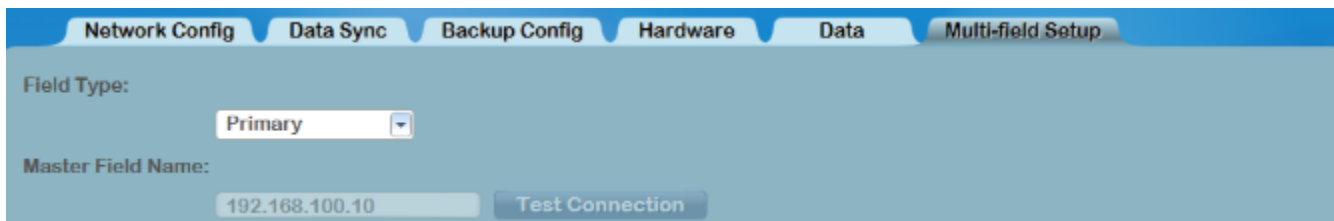
[*Reassign Match Result*] By selecting a test match and traditional match, the results can be overwritten from the test match to the traditional match. The original results of the traditional match will be lost, and replacement is only done on the most recent play.

[*Truncate Qual Schedule*] By entering a value here, the qualification schedule can be shortened, while maintaining equality for all teams (this is only for emergency use, such as acts of god or the direction of FIRST HQ). It requires the password of a support engineer.

# Multi-field Setup

For events that have more than one playing field.

## Setup



The screenshot shows the 'Multi-field Setup' tab selected in a configuration interface. The tab bar at the top includes 'Network Config', 'Data Sync', 'Backup Config', 'Hardware', 'Data', and 'Multi-field Setup'. The main content area has a 'Field Type:' label with a dropdown menu set to 'Primary'. Below this is a 'Master Field Name:' label with a text input field containing '192.168.100.10' and a 'Test Connection' button.

Multi-field setup is used for configuring FMS for use at events with more than one active playing field. **Do not** modify anything within this tab without FRC Engineering support.

This mode is not available to events without coordination with *FIRST*. It is used at the *FIRST* Championship Einstein tournaments in 2018.

# About Tab

# Event Manager (FMS)

## About Tab

### About



The "About" tab contains version information and software notices. 2018 versions of FMS will always have a Major revision of "5".

[Red] Build (revision) of the software currently installed

[White] Build (revision) of the PLC software currently installed. Current build should begin with v20.18 (Not applicable in Off-Season builds)

[Blue] For traditional versions of FMS, check for available updated versions and initiate the install process

[Green] Current software license, which was agreed to upon installation of the software

In the traditional (non Off-Season) version of the software, once an update download has been initiated, the "Check for Update" button will be replaced with download progress statistics.

# FAQ and Appendix

## FAQ

How do I....

## FAQ

Issue/Question	Solution
FMS software crashes	Most times, a crash will prompt you to save a log containing debug information. Save the log (support may ask for it). Reopen FMS. If behavior persists, contact FTA or FIRST Engineering.
How do I interpret the information on the Match Schedule Statistics Tab?	See the matching documentation under Event Wizard
Are the Awards, Match Results, and Rankings web pages stored locally? Where?	No, all pages are created dynamically from uploaded data to the FMS cloud database
I cannot start a match because one of the radio links keeps dropping in an out.	The FMS requires either a robot-ready condition or Player Station bypass to start. Speak with your FTA about how to correct this. Moving the radio on the robot into a more open location may help considerably.
I've skipped a match during the Practice Tournament because no teams were present, but it still is carried along in the Schedule. What's going on?	If you skip a match during the any phase of the Tournament, the system will still carry the match along in the Schedule. This is because it's still eligible to be played. Matches can be played in any order. The system only "removes" matches from the schedule that are Completed (the state column tells you the progress for each match)
How do I open the configuration screen on the Audience Display?	CTRL-SHIFT-F12 or CTRL-SHIFT-C
How do I close the Audience Display?	ALT-F4
6 teams showed up for the Practice match, but only 5 are the scheduled teams. How do I	Type the new team number into the box next to corresponding Player Station on the Match Play screen. The LED display with automatically update with this new team number. If the entered

# Event Manager (FMS)

change the team number on the LED Display so that all 6 team numbers are correct?

What is the password for the Event Server?

Can I view Reports/Match Review/etc. once I've Prestarted the match?

What do the indicator lights on the Field Access Point mean?

What do the lights on the Arena Status Light mean prior to Match Start?

What do the lights on the Arena Status Light mean after the Match ends?

number does not match a registered team for the event, an error message will be given. THIS MUST BE DONE PRIOR TO PRESTART!

Ask your FTA to login

Yes, as long as no matches are running. Pro Tip: You can also save all reports to PDF and place them on the Desktop for printing anytime.

- Center Light
  - Solid Green = Power on, no device connected
  - Solid Blue = at least 1 device connected
  - Flashing = contact field support
- Ethernet Light
  - flashes when there is network traffic
- Radio Light
  - flashes when there is network traffic
- Red Light
  - ON = Red Alliance not ready
  - OFF = Red Alliance ready
- Blue Light
  - ON = Blue Alliance not ready
  - OFF = Blue Alliance ready
- Amber Light
  - Not used prior to Match Start
- Green Light
  - OFF = Blue or Red Alliance not ready
  - ON/Flashing = Field ready to start match
  - ON/Solid = Match is running
- Red Light
  - Not Used
- Blue Light
  - Not Used
- Amber Light
  - ON/Solid = Waiting for Refs to Submit scores



## Event Manager (FMS)

- ON/Flashing = Referees are late to Submit scores
- Green Light
  - Not Used, Match Over

Where is the WPA Key file?

With permissions, it can be retrieved from step 4 of the Event Wizard, select Export Keys

Can I save a schedule from one execution of MatchMaker and import it later?

No, not the schedule. FMS-generated Schedules cannot be imported into FMS. The only method of importing schedules is to import the externally-generated alliance pairings (see appendix).

# Appendix

## Alliance Pairing Import Example

1 10 false 11 false 12 false 13 false 14 true 15 false 2 10 false 11 false 12 false 13 false 14 true 15 false 3 10 false 11 false 12 false 13 false 14 true 15 false 4 10 false 11 false 12 false 13 false 14 true 15 false 5 10 false 11 false 12 false 13 false 14 true 15 false 6 10 false 11 false 12 false 13 false 14 true 15 false 7 10 false 11 false 12 false 13 false 14 true 15 false 8 10 false 11 false 12 false 13 false 14 true 15 false 9 10 false 11 false 12 false 13 false 14 true 15 false 10 10 false 11 false 12 false 13 false 14 true 15 false 11 10 false 11 false 12 false 13 false 14 true 15 false 12 10 false 11 false 12 false 13 false 14 true 15 false 13 10 false 11 false 12 false 13 false 14 true 15 false 14 10 false 11 false 12 false 13 false 14 true 15 false 15 10 false 11 false 12 false 13 false 14 true 15 false 16 10 false 11 false 12 false 13 false 14 true 15 false 17 10 false 11 false 12 false 13 false 14 true 15 false 18 10 false 11 false 12 false 13 false 14 true 15 false 19 10 false 11 false 12 false 13 false 14 true 15 false 20 10 false 11 false 12 false 13 false 14 true 15 false 21 10 false 11 false 12 false 13 false 14 true 15 false 22 10 false 11 false 12 false 13 false 14 true 15 false 23 10 false 11 false 12 false 13 false 14 true 15 false 24 10 false 11 false 12 false 13 false 14 true 15 false 25 10 false 11 false 12 false 13 false 14 true 15 false 26 10 false 11 false 12 false 13 false 14 true 15 false 27 10 false 11 false 12 false 13 false 14 true 15 false 28 10 false 11 false 12 false 13 false 14 true 15 false 29 10 false 11 false 12 false 13 false 14 true 15 false 30 10 false 11 false 12 false 13 false 14 true 15 false 31 10 false 11 false 12 false 13 false 14 true 15 false 32 10 false 11 false 12 false 13 false 14 true 15 false

Example text file for the import file when using externally generated alliance pairings, instead of MatchMaker. Does not replace schedule generation, just pairing generation. One row per match, 13 fields per row (as [described here](#)) with each field tab-delimited.

## Pairing Algorithm

The link below will connect you to the website detailing the algorithm used to generate alliances during the Practice and Qualification tournaments.

<http://www.idleloop.com/matchmaker>