



Training and
Support

2018-2019 *FIRST*® Tech Challenge Game Manual Part 1

ROVER RUCKUS



Presented By **Qualcomm**

www.firstinspires.org

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FOR INSPIRATION & RECOGNITION OF SCIENCE & TECHNOLOGY

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Volunteer Thank You

Thank you for taking the time to volunteer for a *FIRST*® Tech Challenge event. *FIRST*® and *FIRST*® Tech Challenge rely heavily on volunteers to ensure events run smoothly and are a fun experience for teams and their families, which could not happen without people like you. With over 5,500 teams competing yearly, your dedication and commitment are essential to the success of each event and the *FIRST* Tech Challenge program. Thank you for your time and effort in supporting the mission of *FIRST*!

Revision History		
Revision	Date	Description
1	X/X/XXXX	Initial Release

Contents

Contents	3
Introduction.....	5
What is <i>FIRST</i> ® Tech Challenge?.....	5
<i>FIRST</i> Core Values.....	5
<i>Gracious Professionalism</i> ®.....	5
Gracious Professionalism for Volunteers.....	5
<i>FIRST</i> Volunteer Rights and Responsibilities	6
NOTICE OF NON-DISCRIMINATION	6
Volunteer Rights and Responsibilities	6
Tournament Organization Structure	7
Job Description.....	8
Volunteer Training and Certification	8
Volunteer Minimum Age Requirement.....	8
Bring a Friend!	8
Introduction to the Scoring System	9
What is the <i>FIRST</i> Tech Challenge Scoring System?	9
System Hardware.....	9
System Layout.....	9
Basic Configuration with Paper Scoring.....	9
Advanced Configuration with Real-time Score Tracking.....	9
System Requirements	11
Windows	11
Mac	11
Android Tablet (for Real-time Score Tracking)	11
iOS Tablet (for Real-time Score Tracking).....	11
Download and Installation	11

Downloading the Software Package	12
Launching the FIRST Tech Challenge Live Server	12
Launching the Server Using Windows	12
Launching the Server Using macOS	14
Setting Up an Event	15
Logging in to the System	15
Navigating the System’s Home Screen	16
Creating an Event	17
The Event Dashboard	18
Creating Default User Accounts	19
Adding/Editing Teams for an Event	20
Adding a Team Individually	21
Adding Teams by State or Province	21
Importing a List of Teams	22
Editing Existing Teams	23
Adding/Editing Sponsors for an Event	23
Creating the Match Schedule	24
Creating an Event Archive File	26
Match Control and Scoring	26
Example Scoring Workflows	26
Scoring Using Paper Scoresheets	26
Scoring Using Wireless Tablets	27
Event Home Page	27
Match Control Page	28
Match Control Buttons	29
Match Control Tabs	30
Scoring/Timing Displays	30
Setting up a Display	32
Live Score Tracking Using a Tablet	33
Connecting a Tablet to the Server	33
Step-by-Step Example: Scoring an Event with Wireless Tablets	36
SUBTITLE	46
Heading 3	46
Pre-Event Day Responsibilities	46
Event Day Responsibilities	46
Appendix A – Resources	47

Game Forum Q&A	47
FIRST Tech Challenge Game Manuals	47
FIRST Headquarters Pre-Event Support	47
FIRST Tech Challenge Event On-Call Support	47
FIRST Websites	47
FIRST Tech Challenge Social Media	47
Feedback	48

Introduction

What is FIRST® Tech Challenge?

FIRST® Tech Challenge is a student-centered program that focuses on giving students a unique and stimulating experience. Each year, teams engage in a new game where they design, build, test, and program autonomous and driver operated robots that must perform a series of tasks. To learn more about FIRST® Tech Challenge and other FIRST® Programs, visit www.firstinspires.org.

FIRST Core Values

We express the FIRST® philosophies of *Gracious Professionalism*® and *Coopertition*® through our Core Values:

- **Discovery:** *We explore new skills and ideas.*
- **Innovation:** *We use creativity and persistence to solve problems.*
- **Impact:** *We apply what we learn to improve our world.*
- **Inclusion:** *We respect each other and embrace our differences.*
- **Teamwork:** *We are stronger when we work together.*
- **Fun:** *We enjoy and celebrate what we do!*

Gracious Professionalism®

FIRST® uses this term to describe our programs' intent and *Gracious Professionalism*® is not clearly defined for a reason. It has different meanings to everyone. Some possible meanings of *Gracious Professionalism* include:

- Gracious attitudes and behaviors are win-win.
- Gracious folks respect others and let that respect show in their actions.
- Gracious Professionals make valued contributions in a way that is pleasing to others and to themselves.

In the end, *Gracious Professionalism*® is part of everyday life. When professionals use their knowledge graciously and individuals act with integrity and sensitivity, everyone wins, and society benefits.

Watch Dr. Woodie Flowers explain *Gracious Professionalism* in this [short video](#).

Gracious Professionalism for Volunteers

It is a good idea to spend time going over this concept with volunteers. Provide volunteers with real-life examples of *Gracious Professionalism* in practice before, during, and after the event and recognize great *Gracious Professionalism* when you see it in action!

Gracious Professionalism® - "Doing your best work while treating others with respect and kindness - It's what makes FIRST, first."

FIRST Volunteer Rights and Responsibilities

NOTICE OF NON-DISCRIMINATION

For Inspiration and Recognition of Science and Technology (FIRST®) does not discriminate based on race, color, national origin, sex, disability, age, status as a veteran who served in the military, religion, gender, gender identity, or gender expression in its programs and activities.

Keep updated at: <http://www.firstinspires.org/about/legal-notice>

Volunteer Rights and Responsibilities

Volunteers are the most valuable asset to FIRST®. Your selfless contribution of time and resources are instrumental in accomplishing our mission of inspiring the next generation of science, technology, engineering, and mathematics leaders and innovators. The foundation of the relationship between FIRST and our volunteers is respect.

It is your right to:

- Be treated with *Gracious Professionalism*®. *Gracious Professionalism* is a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community.
- Feel valued. FIRST recognizes the significant efforts that volunteers contribute. The time that you donate not only helps FIRST succeed but also builds the FIRST community.
- Understand your role. FIRST will inform you about what's expected of you, your schedule, any meals you will be provided, any changes to program or policy, and who to contact should you need assistance.
- Expect a safe environment. FIRST strives to create and maintain a safe environment for all volunteers and participants and will always factor safety into program planning.
- Receive fair treatment and inclusion. All volunteers will be treated with respect and dignity in inclusive environments. FIRST does not discriminate on the basis of race, color, national origin, sex, disability, age, status as a veteran who served in the military, religion, sexuality, gender, gender identity, or gender expression in its programs and activities.
- Reevaluate your time commitment. FIRST appreciates all of our volunteers and understands that volunteers experience life situations that may affect their commitment.
- Communicate with your Volunteer Coordinator or your local FIRST leadership about:
 - Concerns or limitations that are affecting your volunteer role.
 - Any mistreatment towards you or others. You may be required to fill out a [non-medical incident form](#).
 - Contact FIRST Headquarters directly if you feel that you are being treated improperly and attempts to resolve issues and conflicts at the local level are not successful. Volunteers can call (800) 871-8326 or email volunteer@firstinspires.org.

It is your responsibility to:

- Treat others with *Gracious Professionalism*®.
- Follow the schedule and the role description provided for your position. Contact your local FIRST leadership if there are any issues.

- Respect others, treat them fairly and kindly. Be inclusive and follow the non-discrimination policy of FIRST.
- Follow safety rules and ensure safety of others. Adhere to all [FIRST Youth Protection Program \(YPP\) policies](#). Report any injuries or safety concerns within 48 hours.
- Adhere to the [FIRST Code of Conduct](#).
- Have FUN!

Tournament Organization Structure



Figure 1 - League Championship, Qualifying Tournament, Championship Tournament Organization

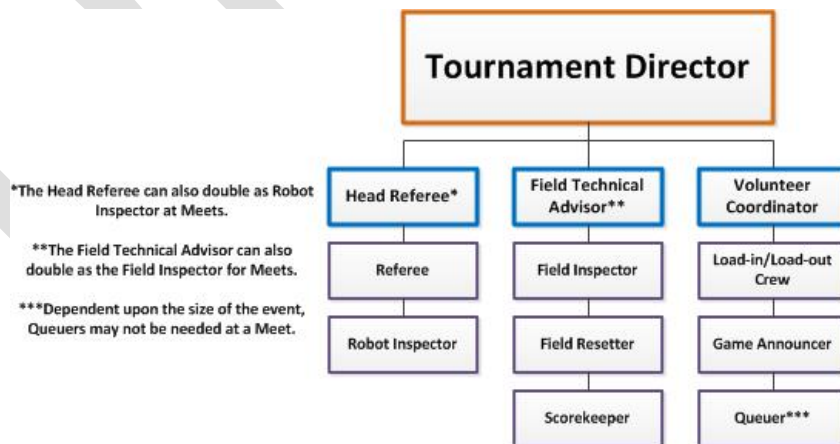


Figure 2 - League Meet Organization

Learn more about the roles of volunteers on our [Volunteer Resources page](#), “Volunteer Role Description”.

Job Description

- **Physical/Technical Requirements:**
 - Technical –
 - Physical –
 - Administrative –
 - Communication –
- **Time commitment:**
- **Proper Dress:**
 - Wear comfortable shoes, most of the day will be spent standing and walking between the Pit area and the Competition Fields.
 - ANSI Z87.1 certified safety glasses are required in the Competition Area.

Volunteer Training and Certification

Volunteers must apply to their role using the [Volunteer Registration System](#). After the volunteer has applied to their role, FIRST Tech Challenge will send an email to the volunteer with access instructions to training and certifications (if applicable). Emails with access to the training and certifications will be sent within one business day from applying to the role. If you have applied for a role but have not received access to the training, please email FTCTrainingSupport@firstinspires.org.

VOLUNTEER ROLE should read this manual before the Event. She/he should speak to the Tournament Director or Affiliate Partner to check for additional requirements, such as meetings before the event or run-throughs of the queuing path before the event. The estimated training time is one hour.

Volunteer Minimum Age Requirement

FIRST requires that FIRST Event volunteers be at least 13 years old, however, the Regional Planning Committee can *increase* the age requirement as needed. Adult volunteers cannot have children with them while volunteering nor be responsible for supervising children at the event. Children under the minimum age are welcome at FIRST Competitions with suitable supervision by someone other than a volunteer.

Bring a Friend!

Volunteers are a huge part of the FIRST Tech Challenge Program and continuing to inspire students to seek out careers in science, technology, engineering, and math (STEM). FIRST Tech Challenge needs your help in recruiting new volunteers to keep our programs thriving for future generations! If you have a friend or co-worker you think would be interested in volunteering at an event, there are just a few easy steps to help get them involved!

1. Check out our full list of [volunteer opportunities](#) online!
2. Have them apply for the Event in the [Volunteer Registration System](#). Volunteers must be screened before volunteering.
3. Have them contact Firsttechchallenge@firstinspires.org with any questions they may have.

If they are concerned about jumping in head first, no worries! Job shadowing at a FIRST Tech Challenge Event is a great way to get a taste of what a full day’s worth of competition looks like. New volunteers can discover ways they can fit their personal skills into a volunteer position!

Introduction to the Scoring System

What is the FIRST Tech Challenge Scoring System?

The FIRST Tech Challenge Scoring System (also known as *FIRST Tech Challenge Live*) is a software program that has multiple functions to allow you to input and track vital information at an Event.

The System allows a Scorekeeper to generate and track the following:

- Team Information,
- Sponsor Information,
- Match schedules,
- Match results (including an option for real-time score tracking)
- Alliance Selection for Elimination and Final Rounds.

This software will also allow you to display Sponsor information and Team Match results to Teams and spectators. This Manual will go through step by step instructions on how to run the program correctly and efficiently.

System Hardware

System Layout

The *FIRST Tech Challenge Live* software is flexible and can be used in a variety of configurations. This section provides an example a very simple configuration and an example of a more complex configuration.

Basic Configuration with Paper Scoring

The most basic configuration requires a single laptop that will serve as both the scorekeeper computer and as the field display computer. This configuration also includes an external monitor (to serve as a field side display), and a printer (to print match schedules and scoresheets).

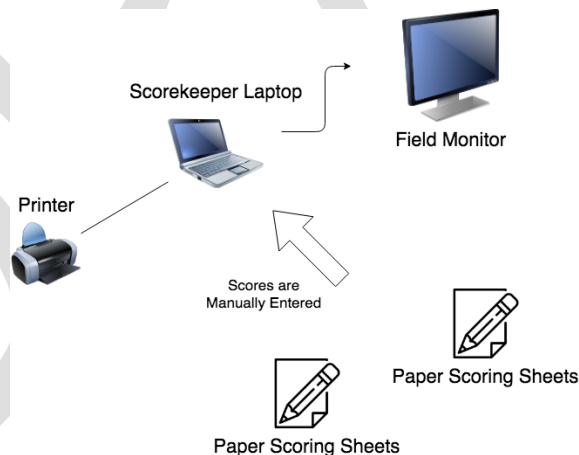


Figure 3 - A very basic layout with paper scoring.

Advanced Configuration with Real-time Score Tracking

The system also supports real-time score tracking using a pair of wireless tablets.

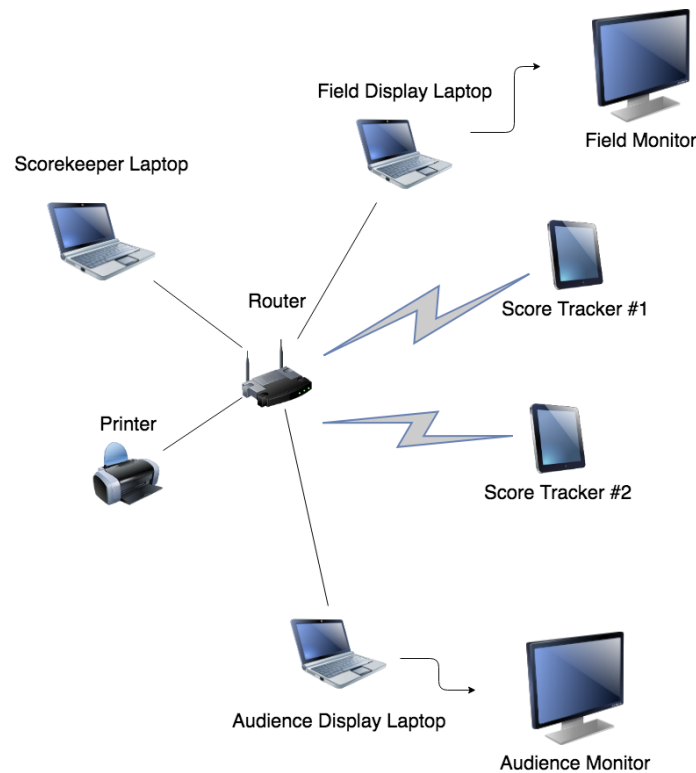


Figure 4 – An advanced configuration with support for real-time tracking.

This advanced configuration includes the following components:

- Scorekeeper Laptop – A laptop that has the *FIRST Tech Challenge Live* scorekeeping software installed. This laptop acts as a server for the whole system. It is also used for match control and scorekeeping (such as reviewing, editing, and committing scores).
- Printer – Used to print match schedules, reports, and other useful documents.
- Network Router with Wi-Fi support – Used to connect system components together.
- Field Display Laptop – A laptop that uses a web browser and a network connection (wired or wireless) to access the system server and display field-related information during an event. It is connected to a large screen monitor.
- Audience Display Laptop - A laptop that uses a web browser and a network connection (wired or wireless) to access the system server and display spectator-specific information during an event. It is connected to a large screen monitor.
- Score Tracker Tablets (x2) – Referees use these tablets to track, in real time, the score during a match. After a match is complete, referees can review, edit and submit their scores to the system. The tablets use a wireless connection and a web browser to access the system server.

Important Tips:

- You will need to know the IP address of your computer that is running the system software (i.e., the scorekeeper laptop in this example). When another device, such as a score tracker tablet or a display computer, wants to access the system, the user will have to provide the IP address of the scorekeeper laptop to the web browser in order to access the system functions.
- Wireless activity for the scoring system should operate on a Wi-Fi channel that will not interfere with the control of the competition robots.

- Audio cues (such as the match start or match stop sound effects) for a public announcement (PA) system can be pulled from any of the system computers. It is recommended that a single computer is used as the source of the (PA) audio (to avoid audio synchronization issues).

System Requirements

The *FIRST Tech Challenge Live* software is available on the Windows and Mac platforms. It is a browser-based application, meaning that you interact with the system exclusively through a web browser. The system also supports real-time score tracking. Live score data can be entered into the system using a tablet.

Windows

- Windows 7 or 10
- Java 8 or higher (available from www.java.com, only needed for the laptop running system software)
- Google Chrome
- Support for Wi-Fi if connecting to a wireless network
- Ethernet adapter if connecting to a wired network

Mac

- macOS Sierra or greater
- Java 8 or higher (available from www.java.com, only needed for the laptop running system software)
- Google Chrome
- Support for Wi-Fi if connecting to a wireless network
- Ethernet adapter if connecting to a wired network

Android Tablet (for Real-time Score Tracking)

- Android Marshmallow (6.x) or greater
- Google Chrome
- Support for Wi-Fi

Note that some event hosts have a preference to use Amazon Kindle tablets for real-time score tracking. Kindle tablets can be configured to work well with the scoring system. Kindle tablets, however, do *not* typically have Google's Chrome Browser installed. Additional steps are required to get the Chrome software running properly on a Kindle tablet. Details on installing Chrome on a Kindle tablet are beyond the scope of this documentation.

Also note that some Kindle tablets have an operating system that is based on an older version of Android (Lollipop). These Kindle devices can still be used with the scoring system.

iOS Tablet (for Real-time Score Tracking)

- iOS 8 or greater
- Google Chrome
- Support for Wi-Fi

Download and Installation

Here are some tips before you get started:

- Disable any firewall, or open appropriate ports, on the computer that will be running the server.
- Disable any ad blocking software on devices that will interface with the server. The ad blocking software occasionally misinterprets server resources as ads.
- Ensure that Google Chrome is installed and is the preferred browser.
- Important note: Firefox browser is not supported!

Downloading the Software Package

The *FIRST Tech Challenge Live* software is available for download from the following link:

<https://github.com/FIRST-Tech-Challenge/scorekeeper/releases>

The software is stored as a compressed archive file and is available in .zip or .tar format. Browse the Releases page and download the .zip or .tar file for the software version that you would like to use. Note that the archive file begins with the phrase “FIRST-Tech-Challenge-Live”.

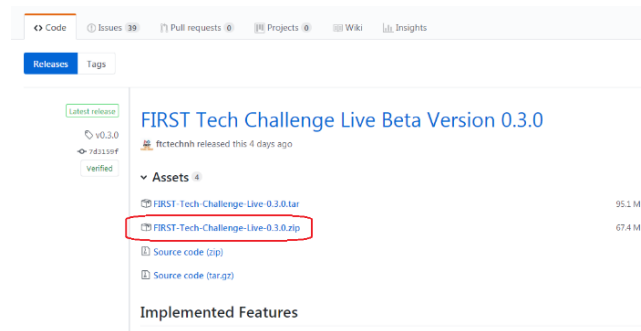


Figure 5 - Releases begin with the phrase “FIRST-Tech-Challenge-Live”.

To use the software, unzip the downloaded file into the folder of your choice. *FIRST* suggests that users save the file on the computer’s desktop to easily access the program. The software will run from this directory.

To extract or unzip the file, you can right mouse click on the archive file and select the appropriate option to extract the compressed files to your computer.

Launching the FIRST Tech Challenge Live Server

Once you have successfully extracted the contents of the archive file, you will need to launch the system server. This server will run in a window on your computer. You will access this server through your Chrome web browser.

Launching the Server Using Windows

Use Windows Explorer to navigate to a folder called “bin”, which is located within the extracted folder. Double click on the “FIRST-Tech-Challenge-Live” executable Windows batch file to launch the server.

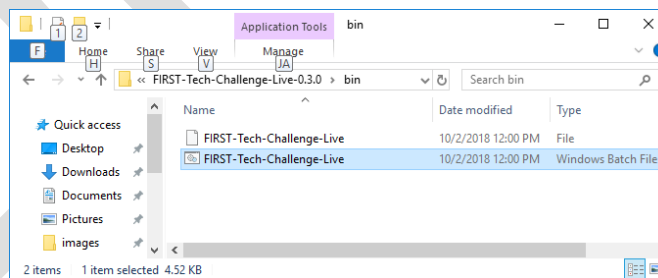


Figure 6 - Double click on the FIRST-Tech-Challenge-Live batch file to launch server.

Windows might warn you that you are attempting to run software from an unknown source. It is safe to ignore the warning and click on “Run” to run the software.

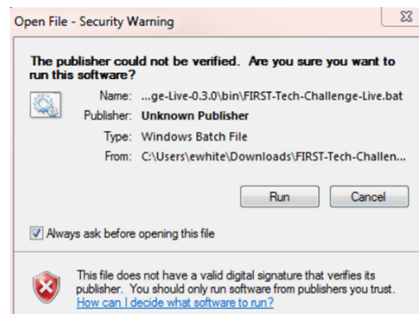


Figure 7 - Windows 7 users might see a warning message similar to this one.

Note that if you are a Windows 10 user you might need to click on the “More info” link on the warning message and then the “Run anyway” button to run the software.

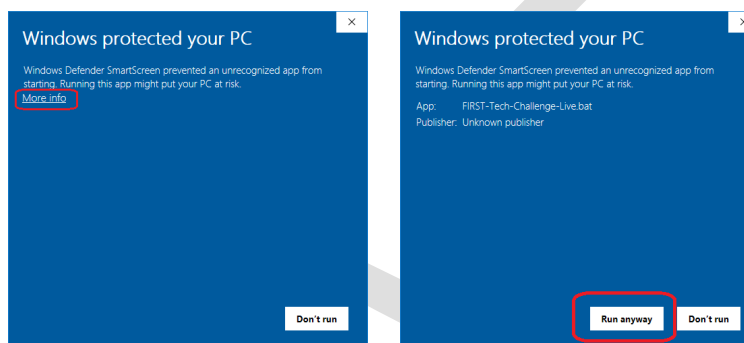


Figure 8 - Click on "More info" then "Run anyway" to run the software.

A black terminal window will pop open and will need to remain open while you are using the software. You can minimize the window so that it will continue to run in the background. This is the window in which the system server is running.

```

C:\WINDOWS\system32\cmd.exe
[main] INFO org.usfirst.ftc.server.SQLiteServerDAO - Creating server.db
[main] INFO org.usfirst.ftc.server.Server - Starting server on port: 80
[main] INFO org.usfirst.ftc.server.Server - External Static Files
[main] INFO spark.staticfiles.StaticFilesConfiguration - External StaticResourceHandler configured with folder - ../lib/public
[main] WARN spark.staticfiles.StaticFilesFolder - Registering external static files folder [../lib/public] as [C:/Users/Fresh10_17/Desktop/FIRST-Tech-Challenge-Live-0.3.0/bin/./lib/public].
[main] INFO org.usfirst.ftc.server.Server - Launching browser for OS: Windows 10
[Thread-0] INFO org.eclipse.jetty.util.log - Logging initialized @10265ms
[Thread-0] INFO spark.embeddedserver.jetty.EmbeddedJettyServer - == Spark has ignited ...
[Thread-0] INFO spark.embeddedserver.jetty.EmbeddedJettyServer - >> Listening on 0.0.0.0:80
[Thread-0] INFO org.eclipse.jetty.server.Server - jetty-9.3.2-SNAPSHOT
[Thread-0] INFO org.eclipse.jetty.server.ServerConnector - Started ServerConnector@219df8d9(HTTP/1.1,[http/1.1]){0.0.0.0:80}
[Thread-0] INFO org.eclipse.jetty.server.Server - Started @12733ms
  
```

Figure 9 - The batch file will launch the system server in a terminal window.

After the server is started, the batch file should also launch your default web browser and display the main system webpage (with a web address of “localhost”).

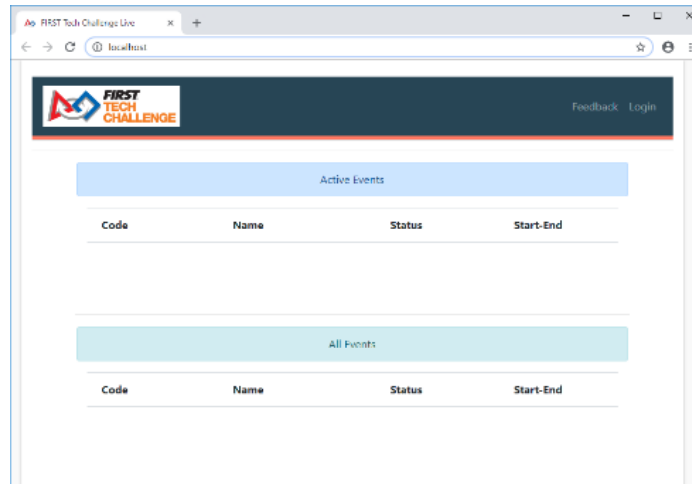


Figure 10 – The software should launch your default browser and display the system’s main page.

Launching the Server Using macOS

On a macOS computer, you will need to use a *terminal* window to launch the software manually. The terminal program is in the “Utilities” subfolder of the macOS “Applications” folder.

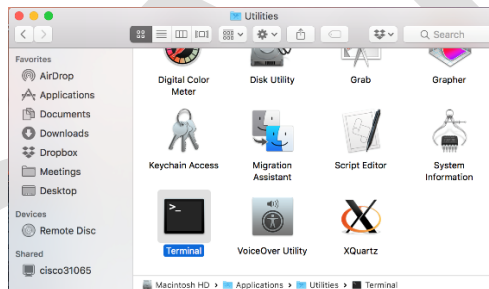


Figure 11- The terminal application is in the “Utilities” subfolder of the “Applications” folder.

Launch the terminal app from the Utilities folder. You will need to type commands into the terminal window to navigate to the *FIRST* Tech Challenge Live directory and then to launch the server software. Note that macOS is a case sensitive operating system so if you copy the commands in the example below, make sure the capitalization is correct.

For example, assume that the software is in a folder on the Desktop of the current user and has the name “FIRST-Tech-Challenge-Live-0.3.0”. You will need to type in the following command at the terminal prompt to change to the “bin” subdirectory.

```
cd ~/Desktop/FIRST-Tech-Challenge-Live-0.3.0/bin/
```

If you successfully changed to this “bin” subdirectory, you can invoke the software using the following command (don’t forget the “.” before the name of the file):

```
sudo ./FIRST-Tech-Challenge-Live
```

The system should prompt you for your account password for that Mac computer. By entering your password, you are telling the Mac computer to run this application with *super user* status. Super user status is needed to start the software properly.



```

bin — java — sudo — 80x24
[Toms-MacBook-Pro:~ tom$ cd ~/Desktop/FIRST-Tech-Challenge-Live-0.3.0/bin/
[Toms-MacBook-Pro:bin tom$ sudo ./FIRST-Tech-Challenge-Live
Password:
[main] INFO org.usfirst.ftc.server.SQLiteServerDAO - Creating server.db
[main] INFO org.usfirst.ftc.server.Server - Starting server on port 80
[main] INFO org.usfirst.ftc.server.Server - External Static Files
[main] INFO spark.staticfiles.StaticFilesConfiguration - External StaticResource
Handler configured with folder = ../lib/public
[main] WARN spark.staticfiles.StaticFilesFolder - Registering external static fi
les folder [../lib/public] as [/Users/tom/Desktop/FIRST-Tech-Challenge-Live-0.3.
0/bin/../lib/public].
[Thread-0] INFO org.eclipse.jetty.util.log - Logging initialized @2238ms
[main] INFO org.usfirst.ftc.server.Server - Launching browser for OS: Mac OS X
[Thread-0] INFO spark.embeddedserver.jetty.EmbeddedJettyServer - == Spark has ig
nited ...
[Thread-0] INFO spark.embeddedserver.jetty.EmbeddedJettyServer - >> Listening on
0.0.0.0:80
[Thread-0] INFO org.eclipse.jetty.server.Server - jetty-9.3.z-SNAPSHOT
[Thread-0] INFO org.eclipse.jetty.server.ServerConnector - Started ServerConnect
or@1fe70cc1{HTTP/1.1,[http/1.1]}{0.0.0.0:80}
[Thread-0] INFO org.eclipse.jetty.server.Server - Started @2508ms
[qtp1711366587-16] INFO org.pac4j.http.client.indirect.FormClient - AJAX request
detected -> returning 401

```

Figure 12 - Mac users should use a terminal window to launch the software.

After the server is started, the batch file should also launch your default web browser and display the main system webpage (with a web address of “localhost”, see Figure 10). Note that while you are using the software, you should keep the server running in the background on your Mac computer. You can minimize the terminal window, but do not close the window or the system will stop working.

Setting Up an Event

Logging in to the System

When you launch the software, a browser window that lists active and all events should appear on your desktop. If this your first time running the software, these lists will be empty. Before you can begin, you must first login to the system.

- Click on “Login” at the top right corner of the screen.
- You can log in with the username “local” and leave the password field blank.

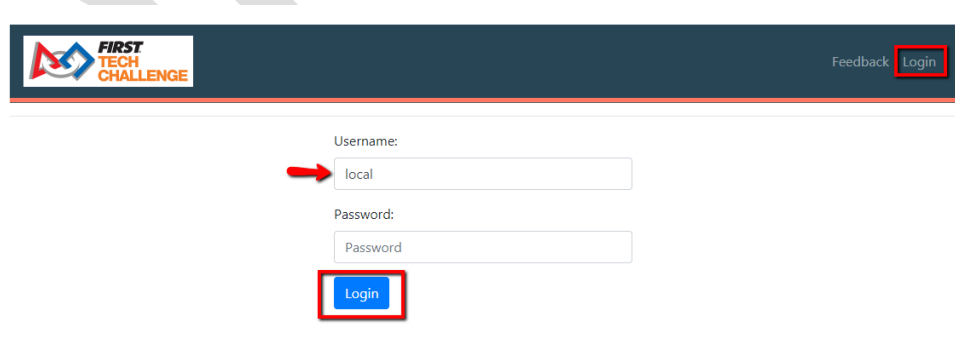


Figure 13 - Log in to the “local” account to gain access to the system.

Important Note: the “local” user account is the primary administrative account for the system. It is only available locally on the computer that is running the server application. Users should take care to secure this computer to make sure an unauthorized user will not get access the “local” account.

Navigating the System's Home Screen

Once you have logged in to the system, the home screen should look like the following image:

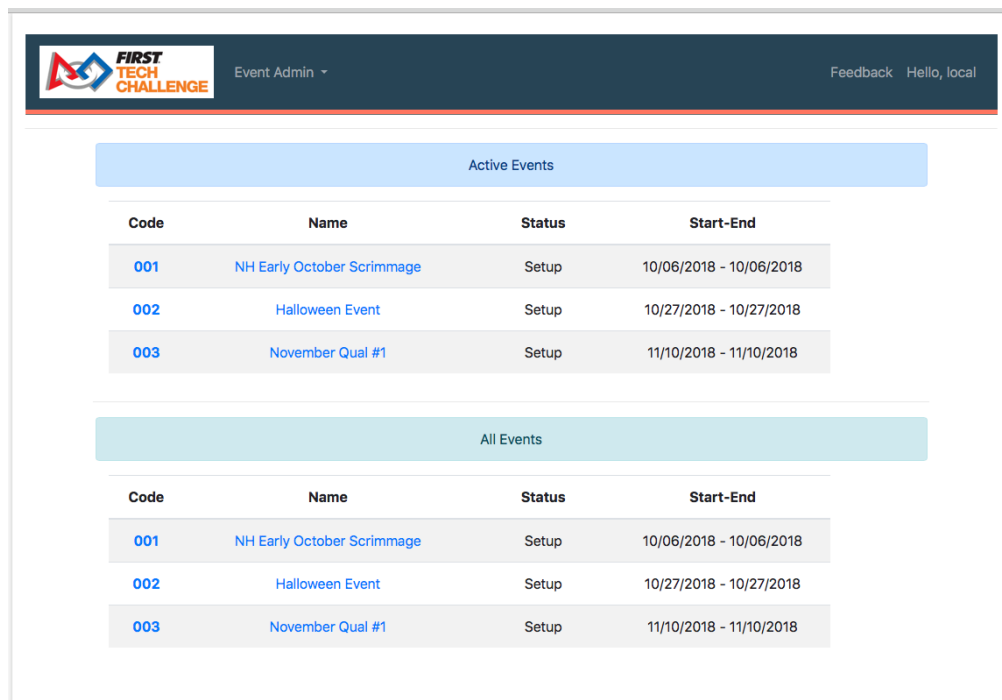


Figure 14 - Clicking on the FIRST Tech Challenge logo (upper left-hand corner of window) will take you to the system's home screen.

Note that if you do not have any events defined for your system, these lists will be empty. You can return to this home screen from many screens within the system by simply clicking on the *FIRST* Tech Challenge logo in the upper left-hand corner of the screen.

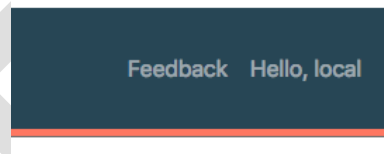


Figure 15 - Feedback and account info links are available in the upper right hand corner of the home screen.

In the upper right-hand corner of the screen you can submit feedback to the *FIRST* Tech Challenge Live software developers and you can also click on the “Hello, local” link to get information about your current user account.

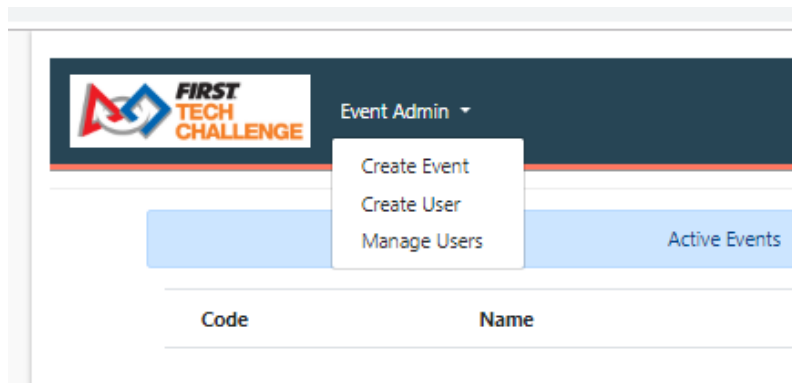


Figure 16 - An "Event Admin" menu should appear after logging in to the system.

Towards the upper left-hand corner of the screen there is an "Event Admin" menu. If you are on the system's home screen, there are options available in the "Event Admin" menu:

- Create Event: This will allow you to create a single event.
- Create User: This gives you the option to create individual user accounts for users that may only require access to a subset of the software features.
- Manage Users: When you have a list of users for the events, this section will allow you to manage the users and their system access.

Clicking on the event code or name for an event listed in the screen will take you to the home screen for that selected event.

Active Events			
Code	Name	Status	Start-End
001	NH Early October Scrimmage	Setup	10/06/2018 - 10/06/2018
002	Halloween Event	Setup	10/27/2018 - 10/27/2018
003	November Qual #1	Setup	11/10/2018 - 11/10/2018

Figure 17 - Clicking on an event code or name will open the home screen for that event.

Creating an Event

From the "Event Admin" menu, select the "Create Event" item to create a new event.

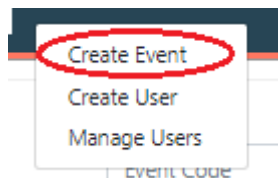


Figure 18 - Select "Create Event" option to create a new event.

When you want to create a new event, you are required to fill in the following fields:

- **Event Code:** The event code must be *unique, all lowercase, and must not contain spaces or special characters*. For example, an event code can be “leaguemeet01” or “nhqualifer1”. Important note for League organizers: the event codes for league meets should be unique within a league.
- **Event Name:** The event name is used for the scoring software and will appear on displays.
- **Event Type:** It is important to select the correct event type. *League meets must select the “League Meet” event type* for the rankings and score rollover to work correctly.
- **Event Start Date:** Select the start date of the event from the calendar.
- **Event End Date:** Select the end date from the calendar.
- **Number of Fields:** League Meets will be pre-populated with 1 field. Other event types will allow you to enter the number of competition fields at the event. Most events have 1 or 2 competition events.

Once you have entered in valid values for these fields, press the “Create Event” button to create the event.

Event Code:

Event Name:

Event Type:

Event Start Date:

Event End Date:

Number of Fields:

[Create Event](#)

Figure 19 - Specify the event information then press “Create Event” to create a new event.

The Event Dashboard

Once you have created a new event, the system should display an *Event Dashboard*, which lists the typical steps a user will follow to run a FIRST Tech Challenge event. You can also jump to the Event Dashboard for the currently selected event by selecting the event’s “Dashboard” option from the “Event Admin” drop down menu.

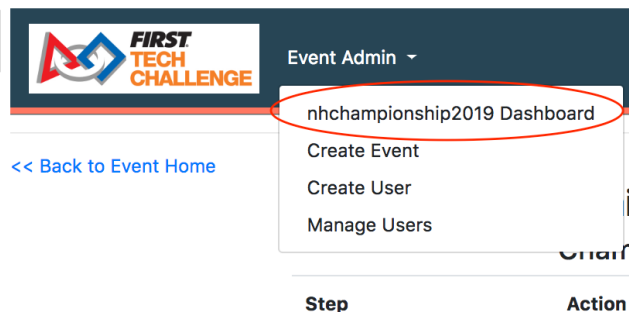
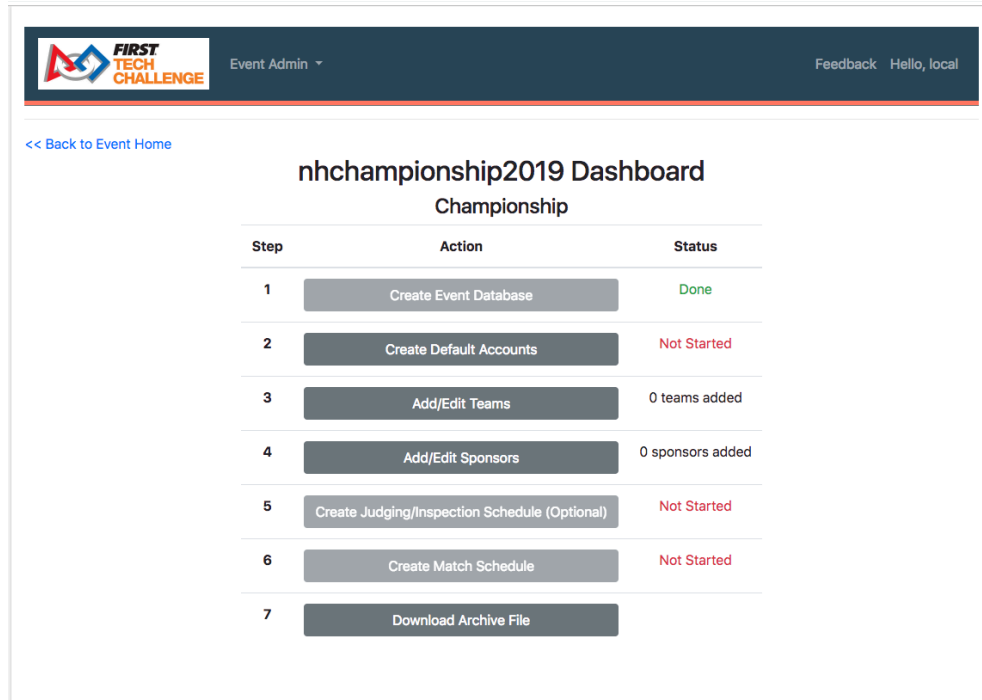


Figure 20 – You can use the Event Admin menu to navigate to the Dashboard if you have an event currently selected.

Each step has an action and a status listed on the Event Dashboard. The action items are also buttons. You can click on a button to perform an action.



The screenshot shows the 'nhchampionship2019 Dashboard' for a 'Championship' event. The dashboard includes a navigation bar with the FIRST Tech Challenge logo, 'Event Admin' dropdown, and 'Feedback Hello, local' links. A 'Back to Event Home' link is visible in the top left. The main content is a table with 7 rows, each representing a step in the event setup process. Each row contains a step number, an action button, and a status.

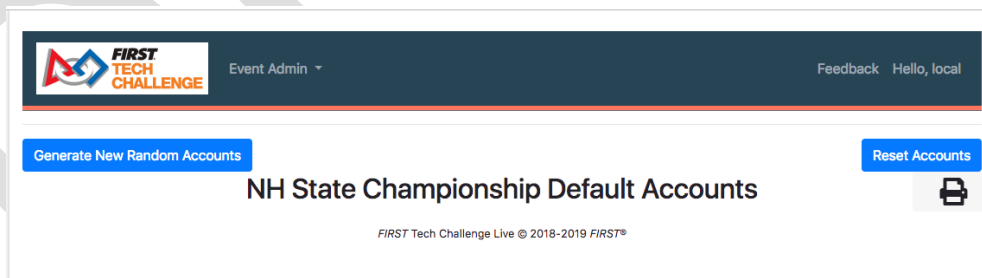
Step	Action	Status
1	Create Event Database	Done
2	Create Default Accounts	Not Started
3	Add/Edit Teams	0 teams added
4	Add/Edit Sponsors	0 sponsors added
5	Create Judging/Inspection Schedule (Optional)	Not Started
6	Create Match Schedule	Not Started
7	Download Archive File	

Figure 21 - Event Dashboard.

Also, in the upper left-hand corner there is a “Back to Event Home” link. Clicking on this link will take you to the home page for the currently selected event.

Creating Default User Accounts

You will need to create a set of user accounts that your volunteers can use during the event. Click on the “Create Default Accounts” button on the Event Dashboard to display the Default Accounts screen.



The screenshot shows the 'NH State Championship Default Accounts' screen. It features a navigation bar with the FIRST Tech Challenge logo, 'Event Admin' dropdown, and 'Feedback Hello, local' links. The main content area has a 'Generate New Random Accounts' button on the left and a 'Reset Accounts' button on the right. A printer icon is located in the bottom right corner. The text 'NH State Championship Default Accounts' is centered, and 'FIRST Tech Challenge Live © 2018-2019 FIRST®' is at the bottom.

Figure 22 – Press the “Generate New Random Accounts” to create a set of accounts for the currently selected event.

Press the “Generate New Random Accounts” to generate a set of user accounts that can be used to provide limited access to the system for your volunteers for the selected event.

Press the printer icon in the upper right-hand portion of the screen if you want to print a hard copy of the list.

Username	Password
nhchampionship2019_eventadmin	verse83
Username	Password
nhchampionship2019_eventmanager	apparel51
Username	Password
nhchampionship2019_referee1	estuary40
Username	Password
nhchampionship2019_referee2	reindeer55
Username	Password
nhchampionship2019_referee3	steps40
Username	Password
nhchampionship2019_referee4	compartment78

FIRST Tech Challenge Live © 2018-2019 FIRST®

Figure 23 - Default user accounts generated by the system.

The password and access permissions for a user account can be changed by an event administrator by clicking on the “Manage Users” item from the “Event Admin” menu and then using the resulting screen to review and modify information the selected account.

New users can be added by an event administrator by clicking on the “Create User” item from “Event Admin” menu.

When they are logged in to the system, an individual user can also change his/her account password by clicking on the “Hello” link in the upper right-hand corner.

An event administrator can reset the accounts back to their originally assigned passwords by clicking on the “Reset Accounts” button.

An event administrator can generate new random passwords for all the default accounts by pressing the “Generate New Random Accounts” button.

Adding/Editing Teams for an Event

Click on the “Add/Edit Teams” button on the Event Dashboard to add or edit teams for the selected event. Note that the system comes with a pre-populated list of *FIRST* Tech Challenge teams that you can search from.

Event Admin - Feedback Hello, local

<< Back Adding to event 'nhchampionship2019'

Find by State/Province Add Individually Done

Team Number to Add: Add Hide Schools / Full Name

Choose File No file chosen Upload Team List

Number	Name	City	State/Province	Country	Rookie Year	Advanced	Division	Edit

Adding a Team Individually

You can add a team individually from the “Add Individually” tab:

- In the “Team Number to Add” field, type in the number of the team you would like to add.
- Press the word “Add” to the right of the Team Number to add the team to the event.

Find by State/Province Add Individually

Team Number to Add: 8888 Add Hi

Figure 24 - Enter Team Number and hit “Add” to add a team.

- If the system already has the team’s data prepopulated, the newly added team number will appear along with its team information. If the system does not have any data for the team, the remaining columns for the newly added team will be blank.
- You can edit the fields of a team by pushing the edit button towards the right side of a team listing. After you have edited the columns for the selected team, push the Save button (which replaced the Edit button)
- You can remove a team by pushing the delete button towards the right side of a team listing.
- You can switch to “Find by State/Province” mode by clicking on the “Find by State/Province” tab.
- If you are done adding and editing teams, press the “Done” button.

Find by State/Province Add Individually Done

Team Number to Add: Add Hide Schools / Full Name

Choose File No file chosen Upload Team List

Number	Name	City	State/Province	Country	Rookie Year	Advanced	Division	Edit
8888	Infinity Factor	Hollis	NH	USA	2014	<input type="checkbox"/>	0	<input type="checkbox"/> <input type="checkbox"/>
11482	MaverBITS	Bedford	NH	USA	2016	<input type="checkbox"/>	0	<input type="checkbox"/> <input type="checkbox"/>

Figure 25 - Use the Edit or Delete buttons to modify or remove a team.

Adding Teams by State or Province

You can also add teams by region by clicking on the “Find by State/Province” tab:

- The system should display a list of available pre-populated teams by selected region.
- Use the Country and State Province Controls to select the country and state/province to display.

Find by State/Province Add Individually

Country: Mexico State/Province: CHH

Number Name School

Figure 26 - Use the Country and State/Province controls to select your country and state/province.

- Find the teams that you would like to add and check their “Add?” check boxes to add them to the event.
- You can switch to “Add Individually” mode by clicking on the “Add Individually” tab.
- If you are done adding and editing teams, press the “Done” button.

Event Admin Feedback Hello, local

<< Back Adding to event 'nhchampionship2019' Done

Find by State/Province Add Individually

Country: USA State/Province: NH

Number	Name	School	City	State/Province	Country	Rookie Year	Add?
7135	Hornets	Proctor Academy	Andover	NH	USA	2013	<input checked="" type="checkbox"/>
7804	Tie Fighters	Dover Middle School	Dover	NH	USA	2013	<input checked="" type="checkbox"/>
8089	Mainframe Meltdown	Kingswood Regional Middle School	Wolfeboro	NH	USA	2013	<input checked="" type="checkbox"/>
8888	Infinity Factor	Hollis Montessori	Hollis	NH	USA	2014	<input checked="" type="checkbox"/>
9181	MasterMinds	Family Friends	Nashua	NH	USA	2014	<input type="checkbox"/>
9620	R.O.U.S.'s (Robots of Unusual Size)	Bosch/Autodesk&Family/Community	Concord	NH	USA	-1	<input type="checkbox"/>
10251	36 Cents	Windup Robotics 4H Club & 4-H Youth Development Organization	Windham	NH	USA	2015	<input checked="" type="checkbox"/>
10660	Voltage	Hollis-Brookline Middle School	Hollis	NH	USA	2015	<input checked="" type="checkbox"/>
11103	Tech Tonix	Family/Community	Bedford	NH	USA	2016	<input checked="" type="checkbox"/>
11115	Gluten Free	Family/Community	Hollis	NH	USA	2016	<input type="checkbox"/>
11282	Founders Academy Blockbusters	The Founders Academy	Manchester	NH	USA	2016	<input type="checkbox"/>
11482	MaverBITS	Family/Community	Bedford	NH	USA	2016	<input checked="" type="checkbox"/>
11536	DS Dynamos	the Derryfield School	Manchester	NH	USA	2016	<input type="checkbox"/>
11682	Botman and Robo	Family/Community	Tilton	NH	USA	2016	<input type="checkbox"/>
11780	B.L.U.E Box	Windham After School Academy&Home School	Windham	NH	USA	2016	<input type="checkbox"/>
11866	Gigabyte	Hollis-Brookline Middle School	Hollis	NH	USA	2016	<input type="checkbox"/>
12494	Southside Gear Grinders	Southside Middle School	Manchester	NH	USA	2016	<input type="checkbox"/>
12536	MPAL	Police Athletic League	Manchester	NH	USA	-1	<input type="checkbox"/>
12822	Red Spark	Ross A. Lurgio Middle School	Bedford	NH	USA	2017	<input type="checkbox"/>
12669	GUI ("Gooley") Gearheads	Hillside Middle School PTO/While you were Out - Professional Cleaning Service/EPE Corporation/Tecomet Inc.&Hillside Middle	Manchester	NH	USA	-1	<input type="checkbox"/>

Figure 27 – Select teams and then click on “Done” to add them.

Importing a List of Teams

You can use the Add/Edit Team page to add teams by selecting and uploading a team list file.

- The system can read team list files from past FIRST Tech Challenge seasons (prior to 2018-2019).
- An event administrator can also create a simple text file with a team number on each line of the file and use that as a team list.
- Press the “Choose File” button and use the pop up file browser to find and select your team list file.
- After you have selected the team list file, press the “Upload Team List” button to upload the list data.

Figure 28 - Use the "Choose File" and "Upload Team List" buttons to select and upload a team list.

The uploaded teams should now be included in the team list for the currently selected event. You can use the "Add Individually" tab of the Add/Edit Team screen to verify and edit the newly imported team data.

Editing Existing Teams

If at a later point in time you would like to edit a team's information you can click on the "Add/Edit Team" button on the Event Dashboard, and then use the "Add Individually" tab to edit the team. When you are finished editing teams, press the "Done" button to leave the Add/Edit Team screen.

Adding/Editing Sponsors for an Event

Click on the Add/Edit Sponsors to create or edit a sponsor list for your event.

Figure 29 - You can add/edit sponsors for an event.

- Press the "Add" button to add a new sponsor for an event.
- Enter the name of the sponsor.
- Select the type of sponsor (Global, Regional, or Event).
- Use the "Choose File" and "Import Logo" buttons to select and import a logo image.
- Click on the "Create Sponsor" button to create the new sponsor.
- From the main Add/Edit Sponsors screen, you can also use the "Choose File" and "Import Sponsor Data" buttons to import a sponsor data file.

Figure 30 - When you add/edit a sponsor, you should specify the sponsor's name and level of support.

Creating the Match Schedule

If you have a list of at least four teams for your event, you can generate the match schedule. Click on the “Create Match Schedule” button on the Event Dashboard to go to the Create Match Schedule screen.

Figure 31 - Create Match Schedule main screen.

- You can edit the “Matches per Team” field (within the limitations set by the system) to adjust how many matches per team will be scheduled.
- You can edit the “Cycle Time” field to adjust the desired target cycle time for a match.
- You can press the “Default” button to use the default parameters to generate a simple match list (no match blocks or breaks included).
- You also have the option to create a more complex match schedule, with blocks of matches and breaks inserted in between.
 - Press the “Add Match Block” button to add a block of matches to the schedule.
 - Press the “Add Break” button to add a break in between matches to the schedule.

- Adjust the start and end times for the blocks and breaks and provide labels (such as “lunch”, “morning”) for the breaks.

Schedule:

Start Time	2018/10/04 11:00	Remove
# Matches:	5	
End Time	2018/10/04 11:35	
Label	lunch	Remove
Start Time	2018/10/04 11:35	
Duration (min):	60	
End Time	2018/10/04 12:35	
Start Time	2018/10/04 12:35	Remove
# Matches:	5	
End Time	2018/10/04 13:10	
Add Match Block Add Break		

Total Matches Scheduled: 10 / 10

Figure 32 - You can create a more complex match list by adding breaks and blocks to the schedule.

- Once you configured your match blocks and breaks, you can push the “Run Matchmaker” button to run Idle Loop’s [Matchmaker](#) software. A progress bar should appear with an estimate on how much time to generate the schedule.

Total Matches Scheduled: 10 / 10

Save Preview **Run Matchmaker**

Estimated time to run MatchMaker: 18s

Estimated time remaining: 8s

Figure 33 - Push the Run Matchmaker button to generate the match list for your event.

- Once the match list has been generated, it will appear towards the bottom of the screen. There is an option to display or hide the suggested match times for the schedule. By default, the match times are hidden.
- After you have reviewed the match schedule, you can use the “<< Back to Dashboard” link to return to the Event Dashboard.

Show Start Time

NH State Championship Schedule

Teams: 8 Matches Per Team: 5 Matches: 10 Cycle Time: 7 min.

Match	Field	Red 1	Red 2	Blue 1	Blue 2
Qualification 1	1	11482	8888	10251	8089
Qualification 2	2	7135	10660	7804	11103
Qualification 3	1	11103	8089	10251	7804
Qualification 4	2	8888	10660	11482	7135
Qualification 5	1	11103	11482	8089	7135
lunch					
Qualification 6	2	10660	10251	7804	8888
Qualification 7	1	10251	7135	10660	8089
Qualification 8	2	7804	11482	11103	8888
Qualification 9	1	8888	10251	7135	11103
Qualification 10	2	8089	7804	10660	11482

MatchMaker Scheduling Software © 2007-2017 Idle Loop Software Design. LLC
FIRST Tech Challenge Live © 2018-2019 FIRST®

Figure 34 - The generated match schedule will appear towards the bottom of the screen.

Creating an Event Archive File

The last step listed on the Event Dashboard is the “Download Archive File”. Pressing this button will create a “snapshot of the event data that can be used to archive match information, to pass league meet match data on from one league event to the next, or to save for debugging and troubleshooting purposes. For Chrome users, the database file should be automatically saved to the “Download” directory of your computer.

Match Control and Scoring

If you successfully created a match schedule for your event, then you are ready to begin controlling (initializing, running, and scoring) the matches.

Example Scoring Workflows

Before examining the details of the Match Control features that are available with the system, it is helpful to look at the workflow for scoring an event using paper scoresheets, and the workflow for scoring an event using electronic score tracking tablets.

Scoring Using Paper Scoresheets

The system can be used with paper scoresheets to control and score an event. An event can be configured so that live scoring is not used. For this scenario, the typical workflow is as follows,

- Scorekeeper loads the next match (by pressing “Load Next Match” button at the top of the screen or by pushing the “Play” button next to the desired match).
- Scorekeeper pushes “Show Preview” button to show a preview of the match information.
- Field elements are randomized (Randomize feature can be used or the referee can roll an actual die).
- Scorekeeper can push “Show Match” button to display the match information on the Field and Audience Displays.
- When field personnel and the teams are ready, Scorekeeper pushes the “Start Match” button to start the match.
- If the Scorekeeper aborts the match, he/she can either replay the match by pushing the Start Match button, or select a new match (by pressing the “Play” button for that match) to activate.
- During the Match, when live score tracking is disabled, the audience and field displays show match info (event name, match number, alliance numbers) and the game timer/clock.
- After the match is complete and the referees have agreed on their paper scores, Scorekeeper uses Score Edit tab to Enter in scores from paper sheets.
- Scorekeeper saves and commits scores with Score Edit tab.
- Scorekeeper presses “Post Results” button to display results on Audience Display.

Scoring Using Wireless Tablets

Wireless tablets can be used for real-time score tracking:

- Scorekeeper loads the next match (by pressing “Load Next Match” button at the top of the screen or by pushing the “Play” button next to the desired match).
- Scorekeeper pushes “Show Preview” button to show a preview of the match information.
- Referees use score tracker tablets to select match that they will score.
- Each referee uses tablet to enter Pre-Match Setup information (Team Present? Robot Latched? Presses Red/Blue Alliance Ready button when done). Once both referees have submitted Pre-Match info, the “Start Match” button will turn green on the Match Control Console for the scorekeeper.
- Referee tablets “Wait for Match Start”.
- Field elements are randomized (push Randomize button, then push Show Random to display randomized results).
- Scorekeeper pushes “Show Match” button to display match info to audience and field displays.
- Scorekeeper pushes “Start Match” to start match.
- Scorekeepers score autonomous, then “Submit Autonomous” data.
- Scorekeepers score driver controlled and end game, then “Submit Driver-Controlled” data.
- Referees review final scores. If in agreement, they “Submit Final Scores”.
- Scorekeeper can review final scores, edit them and then commit them from the Match Control Page (Active Match tab, pressing “Edit” button to enter Score Edit mode).
- If there was an issue, Scorekeeper can press replay button to replay the match.
- Once scores have been confirmed, Scorekeeper presses the “Commit” button to commit them to the database.
- Scorekeeper can push the “Post” button next to a committed match to display the match results on Audience Display.

Event Home Page

You can navigate to the Event Home Page from the Event Dashboard by clicking on the “<< Back to Event Home” link that is in the upper left-hand corner of the screen. Depending on your user account permissions, the home page will display categorized lists of features that are available from the server:

- Event Info – These links display important event-related information. A scorekeeper can review and print out information such as the match schedule, team rankings, and match results using these links. Also, a pit display can be launched from a link in this category.
- Score Tracking – A referee would use these links to score for the red or blue alliance.
- Event Administration – These links take the user to the Event Dashboard, the Match Control page, and to the various public display screens.

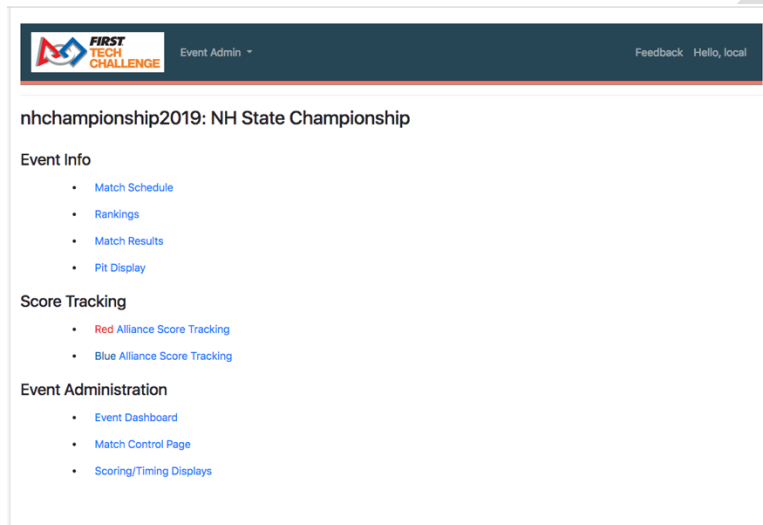


Figure 35 - Event Home page.

Match Control Page

Click on the “Match Control Page” link to display the Match Control Page.

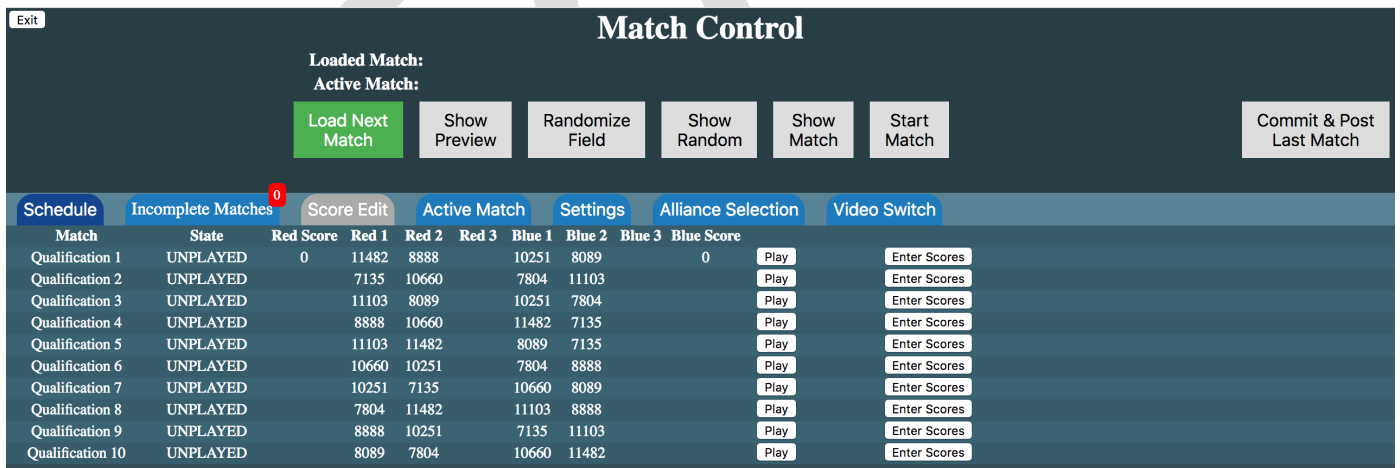


Figure 36 - Match Control Page

The Match Control Page is where the scorekeeper will spend most of their time. It is where the match timer is controlled, as well as where scores are edited. It is recommended that the Match Control Page be used in full screen mode, and that the user not navigate away from the Match Control Page’s browser tab. If the user would like to have two or more active browser screens on their laptop (for example, if the user wanted to display the match control page and the field display page), it is recommended that user have two separate browser windows (and not two browser tabs within the same window) launched on their computer.

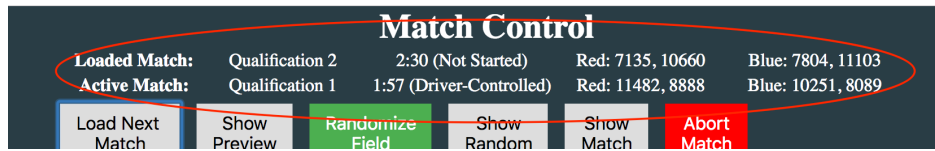


Figure 37 - Loaded Match and Active Match information.

At the very top of the screen (right under the words “Match Control”, see Figure 37 above) the Match Control Page lists information about the current “Loaded Match” and the current “Active Match”.

- Loaded Match –Loaded Match (which appears above the Active Match information) is the next match in line to be played. The alliance lists turn green once the referee has submitted initialization data for that alliance. When both are green, the match start button turns green to allow for match start.
- Active Match - Active Match (which appears below the Loaded Match information) shows the match currently in progress and the time left. The buttons progress through the match flow, generally from left to right. Green buttons indicate the next steps, yellow buttons indicate repeated actions (that are allowed), and red buttons indicate non-standard match flow operations, but are still allowed. Grey buttons cannot be used at the time.

Match Control Buttons

The buttons located at the top of the Match Control Page allow for the control of the match flow.

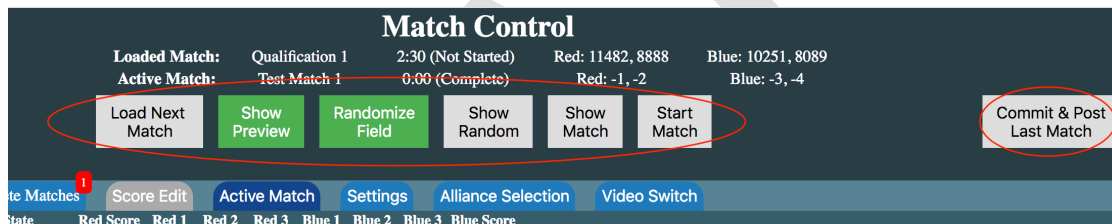


Figure 38 - Buttons allow for control of the match flow.

- Load Next Match - This button will load the next match in the schedule for play, allowing referees to input initialization data and allowing randomization of the field. To load a different match, use the Play / Replay button on the schedule tab. If no matches exist, it will appear the button is doing nothing.
- Show Preview - Audience Displays will show the list of teams competing in the next match, and their current rank.
- Randomize Field - This will generate a random number to use to configure the field before the match. If external randomization is enabled in settings, a tooltip will appear below the button to allow selection of a value. Clicking again will prompt for confirmation, but will allow re-randomization.
- Show Randomization - This will show the randomization value and corresponding field state on Audience and Field Displays.
- Show Match - This prepares the displays for match start by showing the screen used during a match.
- Start Match - Starts the match. This button is not available until after the field has been randomized. It is red until both referees have submitted initialization, but can still be clicked when red. After match start, it turns into an “Abort Match” button, which is used to reset the match timer. After an abort, the match returns to the waiting for init stage, and referees must refresh their pages and re-submit initialization before the start button turns green again.
- Commit & Post Last Match- This is a convenient button that is available once the previous match’s scores have been submitted by referees, and the next match has not yet started. It will both save the results of the previous match, and show them on screen. This button should only be used after confirmation signal from the head referee that all data as entered by the referees is correct and no

cards need to be given. Otherwise, matches can be edited, committed, and posted from the schedule tab / edit scores tab.

Match Control Tabs

The Match Control Page has several tabs that can be used to switch the information displayed on the screen (see Figure 39 below):

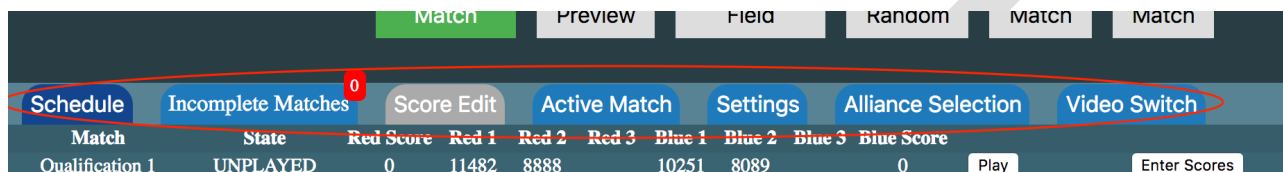


Figure 39 - Click on a tab to change the information displayed on the screen.

- Schedule - Shows list of matches, their status, teams, and scores. From this tab, which match to play can be selected, and matches can be selected to edit or show results.
- Incomplete Matches - Shows the matches that have **been started but not completed** (committed to the database).
- Score Edit - Used to edit scores or enter CARDS. Click **Edit** on a match in the schedule tab to load this tab.
- Active Match - Shows the live scoring state of the match currently being played, or the **last one played**. **Looks like** score edit tab but cannot be edited. After match complete, it provides a button to edit scores.
- Settings - Allows for configuration and loading of test matches.
- Video Switch - Used to show sponsors.

Scoring/Timing Displays

A laptop or computer that is connected to the same network as the system server can be used to display scoring and timing information:

- Field Display – The Field Display provides basic match and timing information for the teams and volunteers on an active competition field. If live scoring is enable, it also provides live score information.

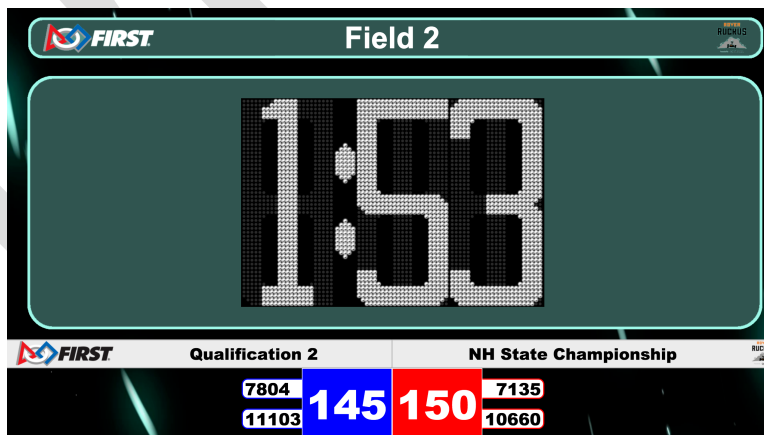


Figure 40 - Field Display

- Audience Display – The Audience Display provides match and timing information, formatted for spectators. If live scoring is enabled, it also provides score information including a graphical representation of the state of the field during a match. When the results of a match have been committed and posted, the results information should display on the audience displays.

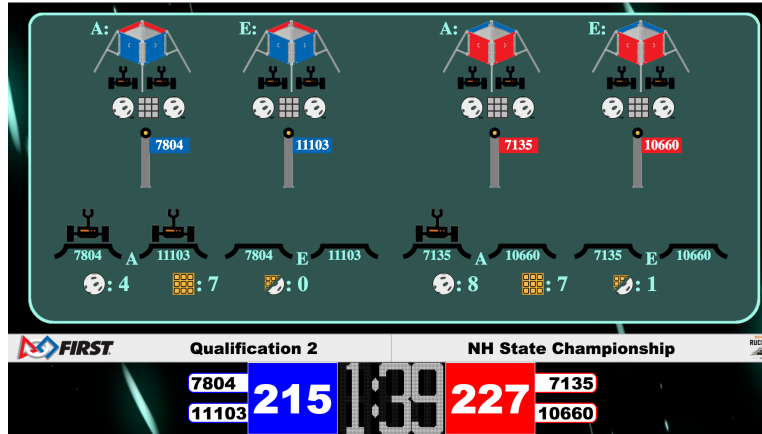


Figure 41 - Audience Display.

- Overlay Display – The Overlay Display mode is similar to the Audience Display, but has a large portion of its screen. The blank portion of the screen is where a video feed (typically live camera footage of the match) can be overlaid onto the screen using chroma key technology.

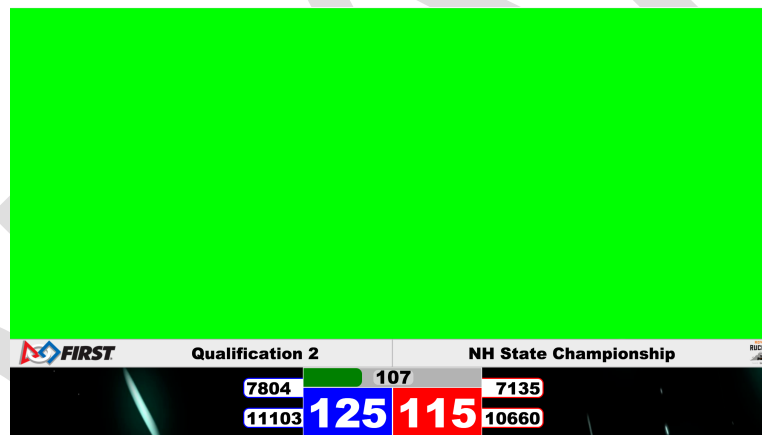


Figure 42 - Overlay Display mode.

You can have multiple devices acting as Field or Audience Displays on your network. It is strongly recommended that these devices are connected to the server through a wired (Ethernet) network to avoid interfering with the wireless control systems of the robots. Or, if a wired connection is not convenient, a wireless connection can be used, but it should be configured so that it operates on a Wi-Fi channel that will not conflict with the wireless control systems of the robots.

Important Note: Because most web browsers set a limit on how many parallel connections there are between the browser and a server, you should be careful and limit how many displays you run on a single computer. The developers recommend the following limits:

- Maximum of 2 Scoring/Timing Displays running on a single computer.
- Maximum of 1 Match Control Page and 1 Scoring/Timing Display running on a single computer.
- Maximum of 1 Scoring/Timing Display and 2 Referee (score tracking) Pages on a single computer.

- Maximum of 1 Match Control Page and 2 Referee (score tracking) Pages on a single computer.

Setting up a Display

Before you can set up a Field or Audience Display, you will need to know the *IP address* of the system server. You will use this address to access the Scoring/Timing Display Features from the server. Before you can begin, you will also need a user id and password for the event that you are trying to display. By default, the Scoring/Timing Displays are private and not accessible without an authorized user account. Currently a user account requires Event Admin privilege to be able to display the Scoring/Timing information.

- Verify that you have the IP address of the system server.
- Verify that you have a valid user id and password that can access the Scoring/Timing feature.
- Launch the Google Chrome browser on your display computer.
- Typing in the IP address to navigate to the system server.

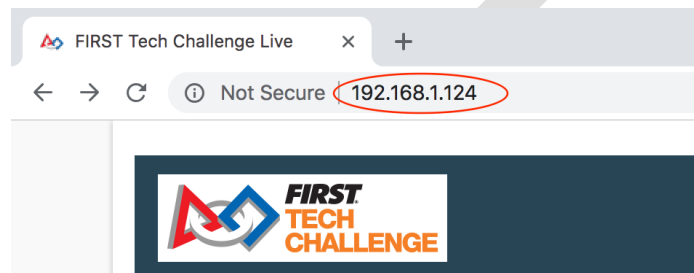
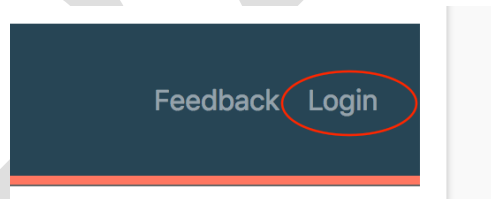


Figure 43 - Type in the IP address to navigate to your system server.

- When you first arrive at the scoring system's Home page, click on the "Login" link in the upper right-hand corner of the screen and login to the system with the valid user id and password.



- After you log in, you should see a listing of available events. Click on the event that you want to track in the Field or Audience Display.
- In the Event Home page for your selected event, click on the "Scoring/Timing Displays" link (currently located under the "Event Administration" category).

Event Administration

- [Event Dashboard](#)
- [Match Control Page](#)
- [Scoring/Timing Displays](#)

Figure 44 - Click on "Scoring/Timing Displays" to launch the Scoring/Timing Display page.

- On first load, the Display Page will appear with a settings dialog open. The settings dialog allows you to choose a display type (Audience, Field, Overlay), as well as binding the display to a field. Note that after you close the settings dialog, can re-open it by clicking anywhere on the page while holding down the CTRL key.

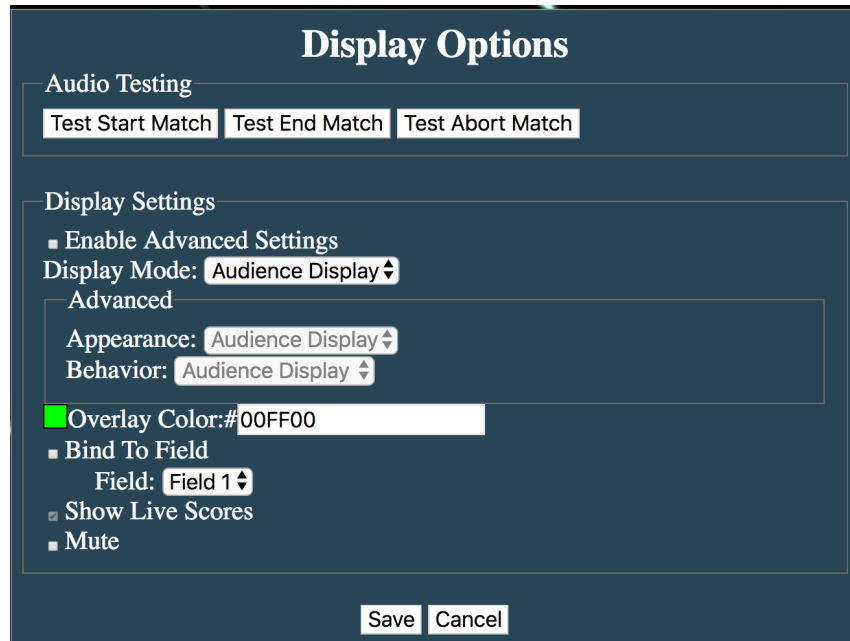


Figure 45 - Display Settings Dialog.

- The “Audio Testing” buttons at the top can be used to play the game audio cues to test the PA system.
- Select the Display Mode for the computer you are configuring.
- If you bind the display to a field, then it will only show events for the specified field.
- Displays must be shown in full screen. After changing to full screen, refresh the page to ensure it is properly displayed.
- Google Chrome is recommended. Firefox is NOT supported and will not work with the display screens.

Once your Scoring/Timing Displays have been configured, they should update automatically as the scorekeeper changes the state of the active event.

Live Score Tracking Using a Tablet

Connecting a Tablet to the Server

A tablet running Google Chrome can be used to manually track scores during a match. Before you can begin live score tracking, you will need to know the IP address of the computer that is running the system server. You also will need a user id and password that has referee (i.e., score tracking) permission for the event.

Also note that if you implement live score tracking using a pair of wireless tablets, make sure the operating Wi-Fi channel for the score tracking tablets will not conflict with the wireless control system of the robots.

To connect to the server, use the following steps:

- Verify that the tablet is connected to the same network as the scoring system server.
- Launch the Google Chrome browser on the tablet and type in the IP address into the Chrome address/navigation bar to navigate to the scoring system server.

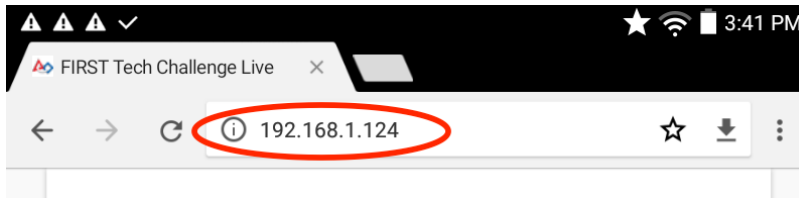


Figure 46 - Type in the IP address (which you can get from your IT admin) of the server in the browser's address bar.

- If you successfully connect to the score keeper server, you will see the system home page. Click on the upper right hand menu icon to display the menu options for the home page. The “Feedback” and “Login” links should appear towards the top of the screen.

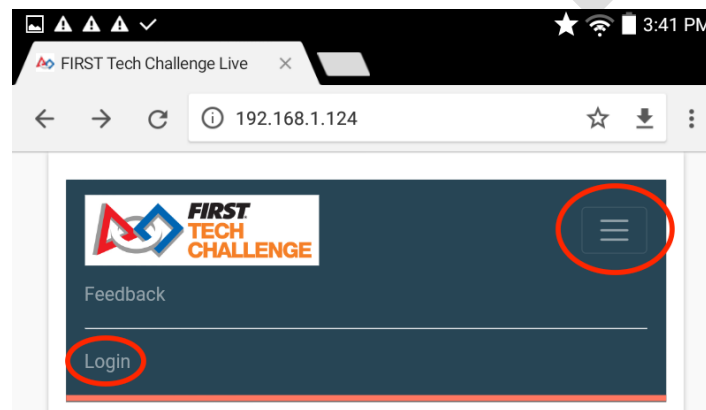


Figure 47 - Click on upper right hand menu icon to display the “Feedback” and “Login” menu options.

- Click on the “Login” link and follow the onscreen instructions to login to the appropriate user account.
- If you have successfully logged in, you should see the Home page with a listing of all the active events in the system. Click on the event that you want to score.

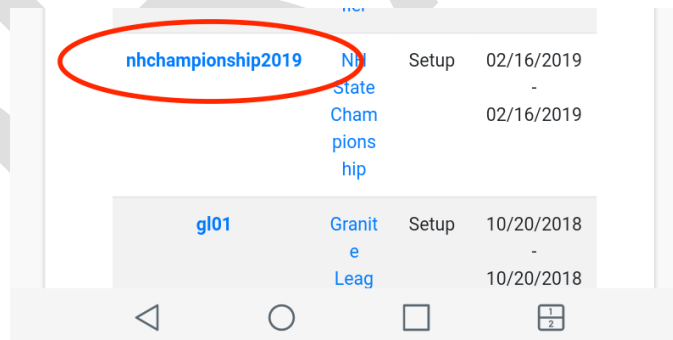


Figure 48 - Find your event on the system home page and click on it to select it.

- On the Event Home Page, click on the appropriate Score Tracking link (Red Alliance or Blue Alliance).

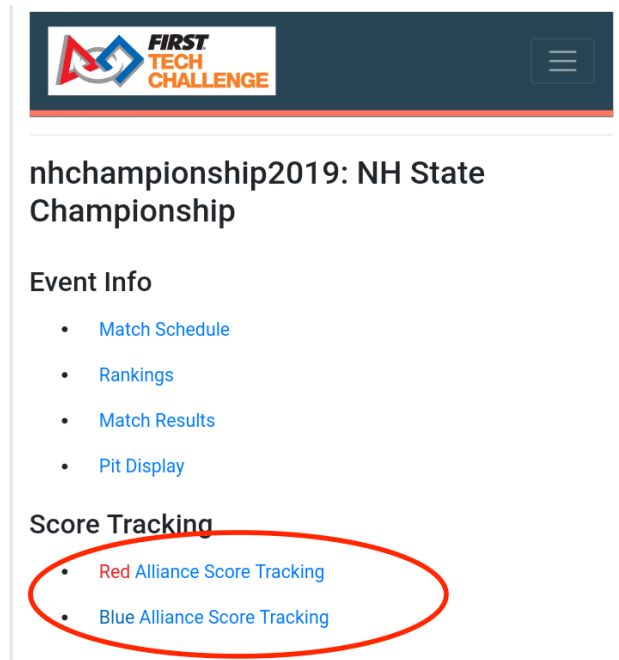


Figure 49 - Click on the appropriate Red or Blue Alliance link.

- If prompted, select a field if you want to bind the tablet to a specific field or select “All Matches” if you would like to use this tablet to score all matches for this event.

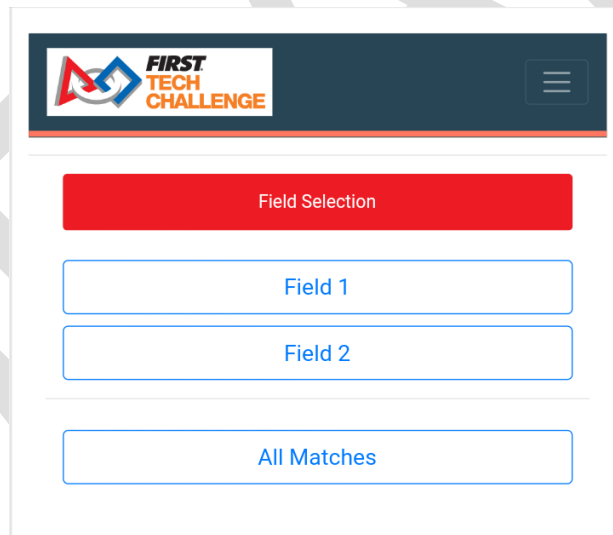


Figure 50 - Select a field if you want to bind tablet to a specific field, or select “All Matches” to score all matches with this tablet.

- If there are no active matches yet, the tablet will display the following message. You will have to wait for the scorekeeper to prepare a match to play before the screen will change.

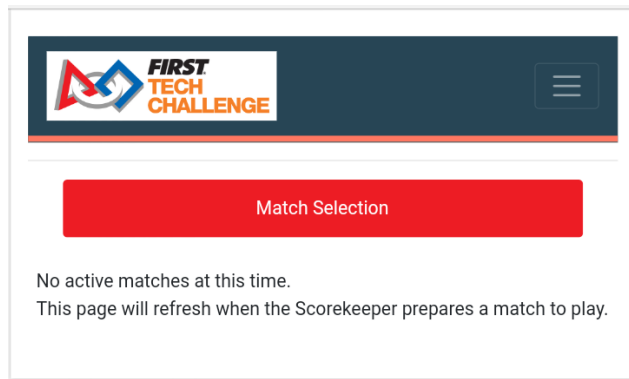


Figure 51 - If there are no active matches, then this message will appear.

Step-by-Step Example: Scoring an Event with Wireless Tablets

In this section, we will go step-by-step through the process of scoring an event using wireless tablets for real-time score tracking. This example assumes that the scorekeeper is logged in to the system with Event Admin privileges and has a browser window displaying the Match Control Page for the selected event. We also assume that the referees who are score tracking for the event have connected their respective tablets to the server and are logged in with score tracking access. We also assume that there is a Field Display computer and an Audience Display computer and these devices are properly configured and connected to the server.

1. Scorekeeper selects the match that he/she wants to score and pushes the “Play” button that appears next to its listing on the Match Control Page (or the Scorekeeper pushes “Load Next Match” if the next match in the schedule is to be played). The match should be listed as the “Loaded Match” near the top of the Match Control screen.

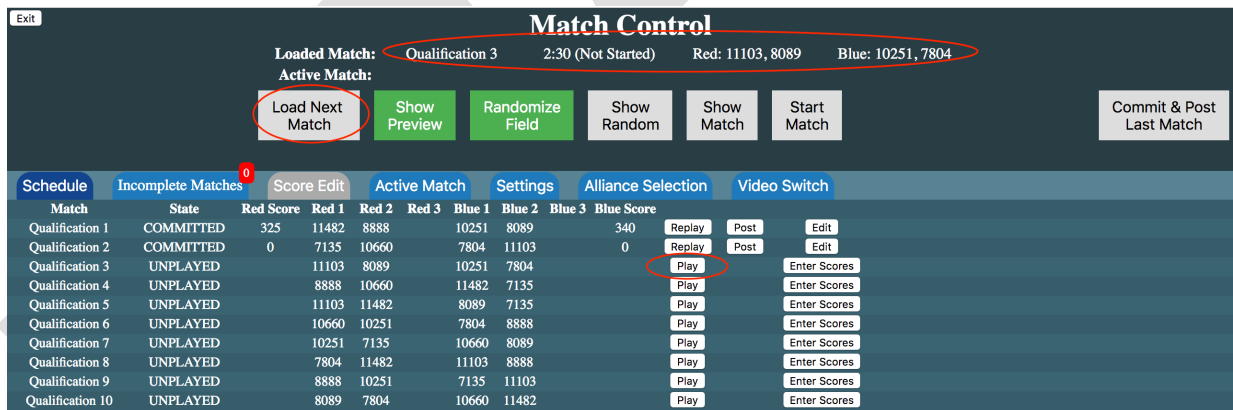


Figure 52 - Press "Load Next Match" or "Play" button to load a match. It will be listed as the “Loaded Match” near the top..

2. The scorekeeper tablets should display the match (or matches) that are available for scoring. Both referees (Red Alliance and Blue Alliance score trackers) should click on match that they will be scoring.

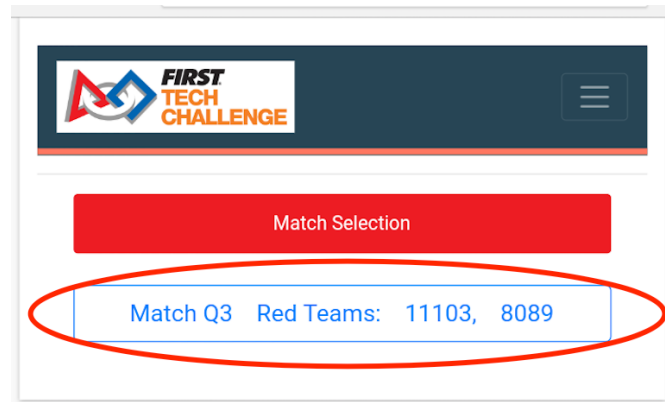


Figure 53 – The red and blue alliance referees should click on the match they will scoring (red alliance tablet is shown above).

3. The scorekeeper presses the “Show Preview” button on the Match Control Page. This should force the Audience Displays to display information about the upcoming match. Note that on the Match Control Page the “Show Preview” button should change from green to yellow after the button has been pressed.



Figure 54 - The Audience Display should display match info after the “Show Preview” button has been pressed.

4. The score tracking referees should see a screen that displays the Pre-Match Setup state for their alliance.
 - a. Each referee (red and blue) should use the tablet to update the Pre-Match Setup state to match the state of the field. The system needs to know if each team is present.
 - b. The system also needs to know if the robot for each present team is latched onto the lander or not.
 - c. The referees should press the respective “Alliance Ready” buttons at the bottom of their screen after they have entered in the current state of their Pre-Match field.
 - d. In Figure 55 (see below) team 11103 is present and their robot is latched onto the lander. Team 8089 is present, but their robot is not latched onto the lander.

Figure 55 – Each referee should update the Pre-Match state information and then press the “Alliance Ready” button.

5. Once the Pre-Match information has been entered, the referee tablets will display a message that indicates that the system is waiting for the match to start.

Figure 56 - Score tracker tablets will indicate that they are waiting for the match to start.

6. The scorekeeper should press the “Randomize Field” button to “roll” the virtual die to determine how to configure the minerals for the autonomous portion of the match.
 - a. After the field has been randomized, the score tracking tablets will display the randomization results.
 - b. The Audience Display, however will not show the randomization results yet. Instead, the Match Preview information should still be visible.

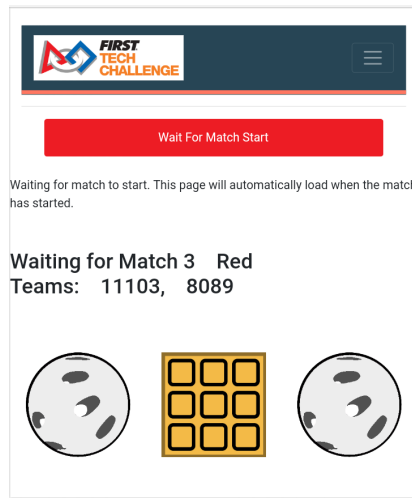


Figure 57 - Score tracking tablets will show randomization, but still wait for match to start.

- The scorekeeper should press the “Show Random” button to display the randomized information on the Audience Displays.

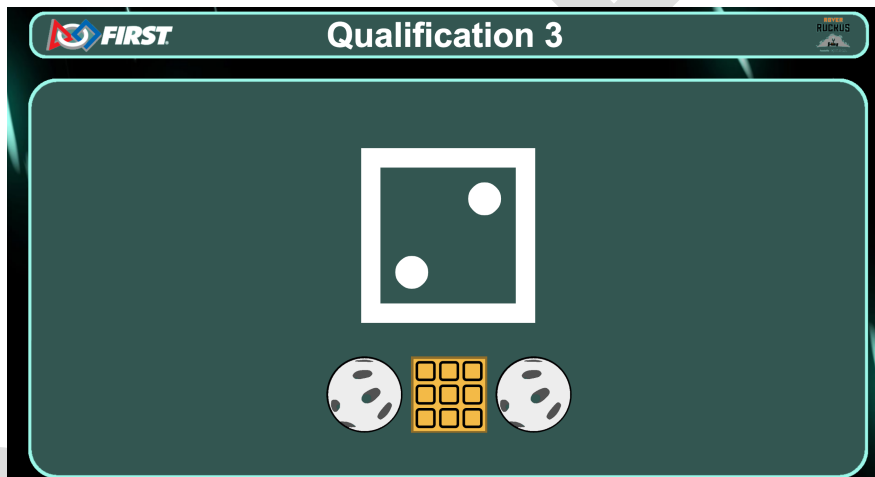


Figure 58 – After the “Show Random” button has been pressed, the Audience Display will show randomization info.

- The scorekeeper should press the “Show Match” button to show the match information on the Audience Displays and the Field Displays.

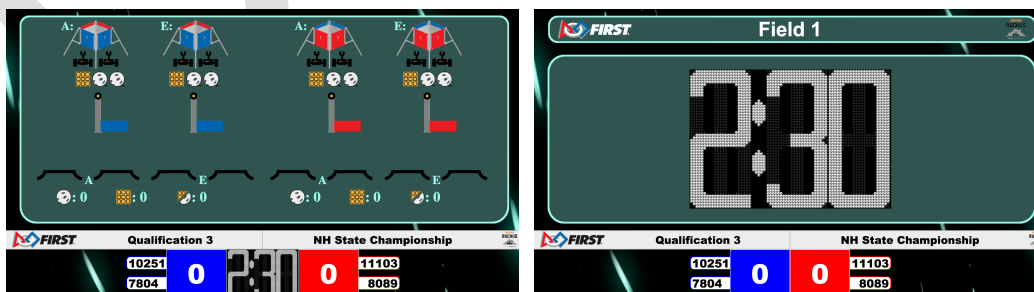


Figure 59 - The Audience and Field Displays should display the match information.

- When everyone is ready to begin, the scorekeeper pushes the “Start Match” button to start the match.

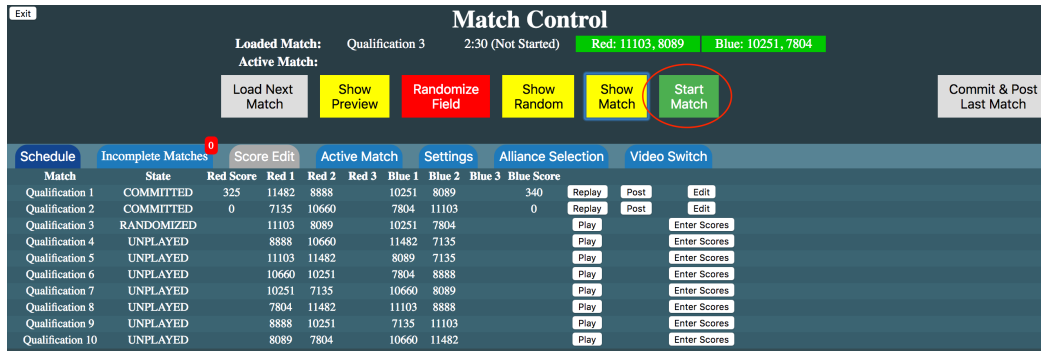


Figure 60 - Scorekeeper presses "Start Match" button to start the match.

- During the Autonomous phase, the referees should enter the score tracking data using their respective tablets. While the scores are being entered, the score values on the Audience and Field displays should be updated with the current score tracking values. The scorekeeper can press the "Active Match" tab on the Match Control Page to monitor the score tracking data. The match information (including the time remaining on the countdown timer and the state of the match) are listed for the "Active Match" at the top of the Match Control Page.

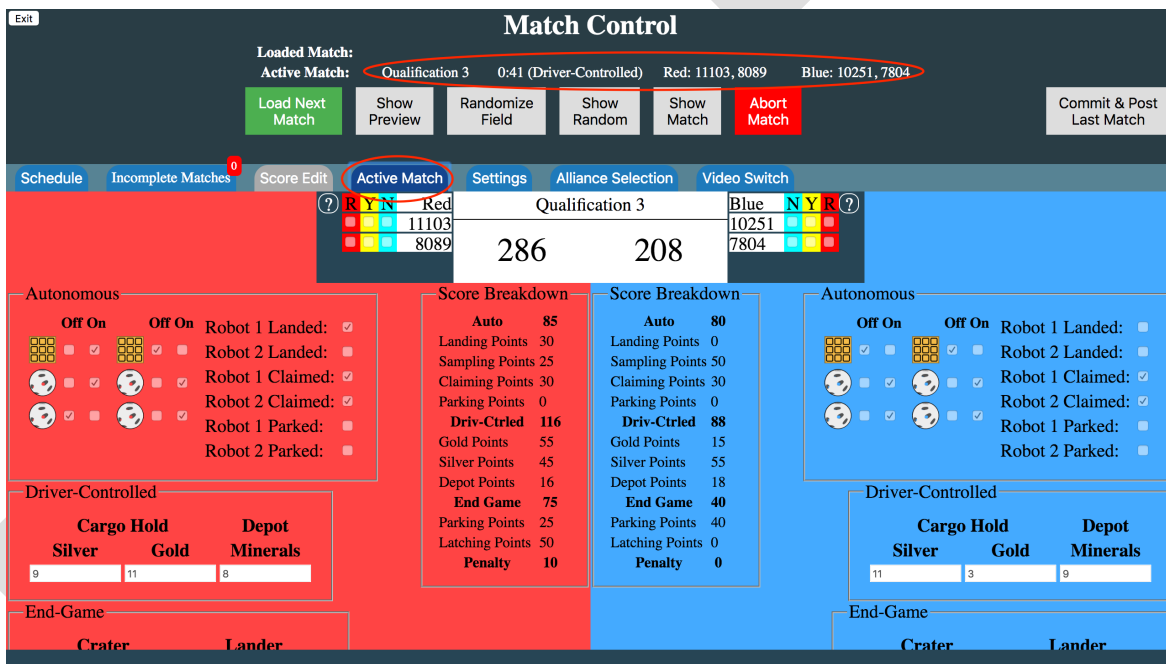


Figure 61 - The scorekeeper can press the "Active Match" tab to display the active match information.

- Once the Autonomous phase is complete, the referees should verify their autonomous scores and push the "Submit Autonomous" button to submit the autonomous scores to the system.

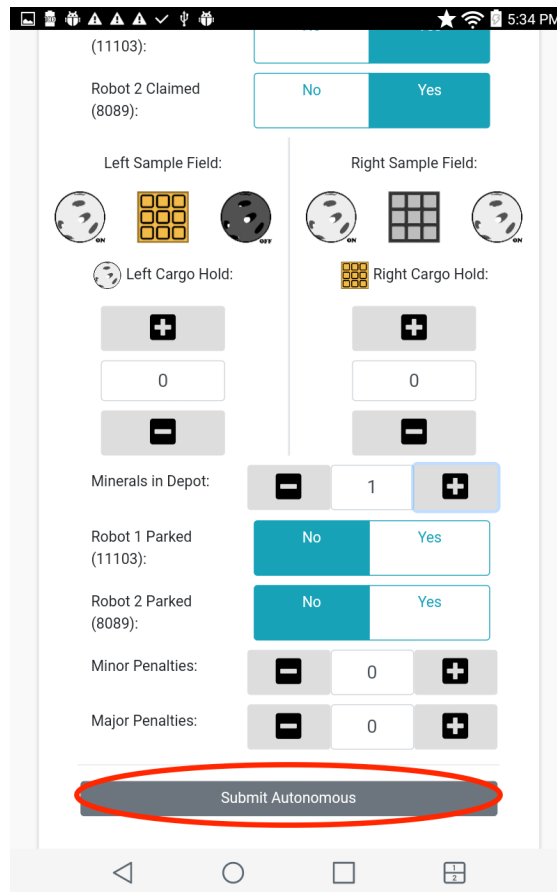


Figure 62 – Referees should push the “Submit Autonomous” button to submit their autonomous scores.

12. During the Driver-Controlled period, referees should enter the scoring data using their tablets.
13. Once the Driver-Controlled period is complete, referees should verify their scoring data and then push the “Submit Driver-Controlled” button to submit the scoring data.

The screenshot shows the 'Driver-Controlled' app interface. At the top, a red banner reads 'Driver-Controlled'. Below this, the interface is divided into two columns: 'Left Cargo Hold' and 'Right Cargo Hold'. Each column has a '+' button, a text input field (containing '9' and '11' respectively), and a '-' button. Below these are 'Minerals in Depot' with '-' and '+' buttons and a text input field containing '8'. Further down are sections for 'Robot 1 Latched (11103)', 'Robot 2 Latched (8089)', 'Robot 1 In Crater (11103)', and 'Robot 2 In Crater (8089)', each with radio button options for 'No', 'Yes', 'Out', 'Partially In', and 'Completely In'. At the bottom, there are 'Minor Penalties' and 'Major Penalties' sections, each with '-' and '+' buttons and a text input field containing '0'. A large grey arrow points from the right side of the screen towards the 'Submit Driver-Controlled' button at the bottom, which is circled in red. The Android navigation bar is visible at the very bottom.

Figure 63 - Referees should push "Submit Driver-Controlled" to submit their Driver-Controlled scores.

14. After both referees submitted the Driver-Controlled data, they have an opportunity to review and edit all the scoring data for the match that was just played.

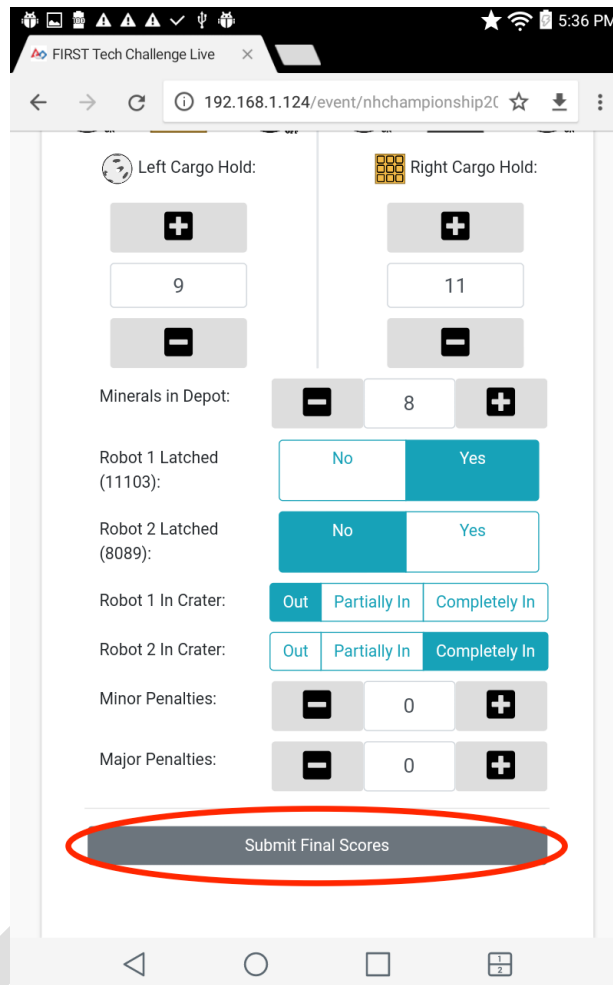


Figure 64 - Referees can review the scores and then push the "Submit Final Scores" button.

15. After the referees have submitted their final scores, the scorekeeper has the option to edit the scores even further, or he/she can commit the scores by pushing the "Commit" button listed next to the match.

Match	State	Red Score	Red 1	Red 2	Red 3	Blue 1	Blue 2	Blue 3	Blue Score	Replay	Post	Edit
Qualification 1	COMMITTED	325	11482	8888		10251	8089		340	Replay	Post	Edit
Qualification 2	COMMITTED	0	7135	10660		7804	11103		0	Replay	Post	Edit
Qualification 3	SUBMITTED	286	11103	8089		10251	7804		208	Replay	Commit	Edit
Qualification 4	UNPLAYED		8888	10660		11482	7135			Play	Enter Scores	
Qualification 5	UNPLAYED		11103	11482		8089	7135			Play	Enter Scores	
Qualification 6	UNPLAYED		10660	10251		7804	8888			Play	Enter Scores	
Qualification 7	UNPLAYED		10251	7135		10660	8089			Play	Enter Scores	
Qualification 8	UNPLAYED		7804	11482		11103	8888			Play	Enter Scores	
Qualification 9	UNPLAYED		8888	10251		7135	11103			Play	Enter Scores	
Qualification 10	UNPLAYED		8089	7804		10660	11482			Play	Enter Scores	

Figure 65 - Scorekeeper can press the "Commit" button to commit the finalized scores.

16. Once the scores have been committed, the Scorekeeper can push the "Post" button to post the results to the Audience Displays.
- The scorekeeper also has the option to replay the match if the referees determine that a replay is warranted.
 - The scorekeeper also has the option to Edit the scores for the match.

Schedule	Incomplete Matches ⁰	Score Edit	Active Match	Settings	Alliance Selection	Video Switch						
Match	State	Red Score	Red 1	Red 2	Red 3	Blue 1	Blue 2	Blue 3	Blue Score	Replay	Post	Edit
Qualification 1	COMMITTED	325	11482	8888		10251	8089		340	Replay	Post	Edit
Qualification 2	COMMITTED	0	7135	10660		7804	11103		0	Replay	Post	Edit
Qualification 3	COMMITTED	286	11103	8089		10251	7804		208	Replay	Post	Edit
Qualification 4	UNPLAYED		8888	10660		11482	7135			Play		Enter Scores
Qualification 5	UNPLAYED		11103	11482		8089	7135			Play		Enter Scores
Qualification 6	UNPLAYED		10660	10251		7804	8888			Play		Enter Scores
Qualification 7	UNPLAYED		10251	7135		10660	8089			Play		Enter Scores
Qualification 8	UNPLAYED		7804	11482		11103	8888			Play		Enter Scores
Qualification 9	UNPLAYED		8888	10251		7135	11103			Play		Enter Scores
Qualification 10	UNPLAYED		8089	7804		10660	11482			Play		Enter Scores

Figure 66 - Once the scores have been committed, the scorekeeper can post the results.

Qualification 3

10251	3 ▼	11103	2
7804	4	8089	1

Autonomous	80	Autonomous	85
Mineral	88	Mineral	116
End Game	40	End Game	75
Red Penalty	0	Blue Penalty	10

208 **286** **Winner!**

Figure 67 - When the scorekeeper posts the results, the final match info is displayed on the Audience Displays.

17. Note: If the match is complete and the referees have *not yet submitted* their final scores, the scorekeeper has the option to force and edit of the match score data.
- If this is done before the referees submit their final scores, the referees will not be able to submit final scores for the match (the scorekeeper is overriding their scores).
 - This option allows a scorekeeper to enter in score data from a paper scoresheet, if, for example, live scoring is not available during a match.
 - In general, however, scores should be submitted by the referees using their score tracking tablets.

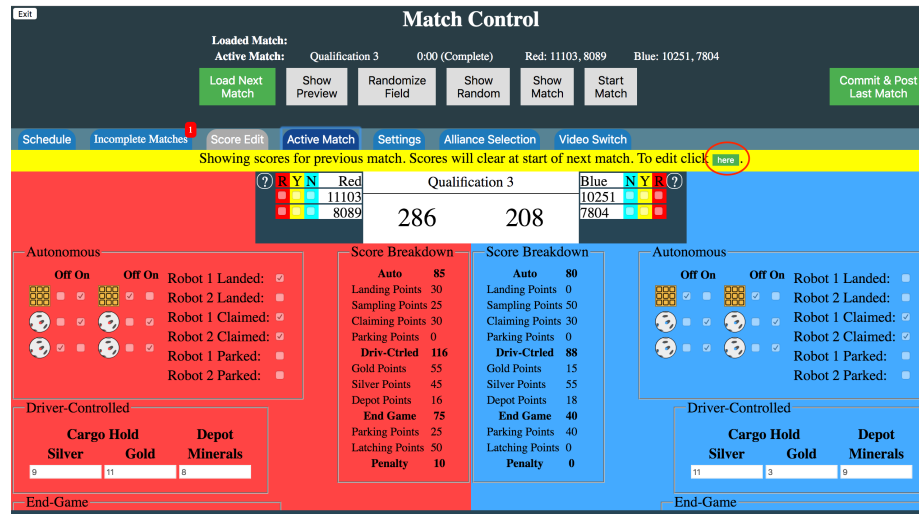


Figure 68 – Scorekeepers can edit/override the score data by clicking on the green “here” button (see image above).

18. Note: the scorekeeper can abort the match by pushing the “Abort Match” button during the match.
 - a. The system will prompt the scorekeeper to verify that he/she really wants to abort the match.
 - b. If a match is aborted, referees will need to manually refresh their tablet browsers to display the accurate state information for the match.
 - c. After a match has been aborted, it can be replayed. Note the field might need to be re-randomized before replaying a match.
19. Once this process has been completed, the scorekeeper can press the “Load Next Match” button to start the process for the next match in the schedule.

SUBTITLE

TEXT

- List
- List
- List

Heading 3

TEXT

Heading 4

TEXT

Heading 5

TEXT

Pre-Event Day Responsibilities

Outlined below are responsibilities a VOLUNTEER ROLE have before Event day. Make sure to check with the Event Director to see if they need help setting up before the Event.

- List
- List
- List

Event Day Responsibilities

TEXT TEXT TEXT

Appendix A – Resources

Game Forum Q&A

<http://ftcforum.usfirst.org/forum.php>

Anyone may view questions and answers within the FIRST[®] Tech Challenge Game Q&A forum without a password. To submit a new question, you must have a unique Q&A System User Name and Password for your team.

Volunteers that apply for a specific volunteer role will receive an email from FTCTrainingSupport@firstinspires.org with their username and password to the forum. You will receive access to the forum thread specific to your role.

FIRST Tech Challenge Game Manuals

Part 1 and 2 - <https://www.firstinspires.org/resource-library/ftc/game-and-season-info>

FIRST Headquarters Pre-Event Support

Phone: 603-666-3906

Mon – Fri

8:30am – 5:00pm

Email: Firsttechchallenge@firstinspires.org

FIRST Tech Challenge Event On-Call Support

*These numbers are available for event personnel only. Please **do not** call these numbers if you are a team looking for a ruling, a decision, or assistance. We trust that you will not misuse this resource.*

Day of Event Robot Control System Support: 603-206-2450

All other Day of Event support: 603-206-2412

FIRST Websites

FIRST homepage – www.firstinspires.org

[FIRST Tech Challenge Page](#) – For everything FIRST Tech Challenge.

[FIRST Tech Challenge Volunteer Resources](#) – To access public Volunteer Manuals.

[FIRST Tech Challenge Event Schedule](#) – Find FIRST Tech Challenge events in your area.

FIRST Tech Challenge Social Media

[FIRST Tech Challenge Twitter Feed](#) - If you are on Twitter, follow the FIRST Tech Challenge Twitter feed for news updates.

[FIRST Tech Challenge Facebook page](#) - If you are on Facebook, follow the FIRST Tech Challenge page for news updates.

[FIRST Tech Challenge YouTube Channel](#) – Contains training videos, Game animations, news clips, and more.

[FIRST Tech Challenge Blog](#) – Weekly articles for the *FIRST* Tech Challenge community, including Outstanding Volunteer Recognition!

[FIRST Tech Challenge Team Email Blasts](#) – contain the most recent *FIRST* Tech Challenge news for Teams.

Feedback

We strive to create support materials that are the best they can be. If you have feedback about this manual, please email firsttechchallenge@firstinspires.org. Thank you!

DRAFT