VEX Robotics Competition

Live Remote Tournaments (LRT)

Team Setup & Instructions
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**Introduction to Live Remote Tournament (LRT) Gameplay**

Live Remote Tournament (LRT) gameplay is a new format developed by the REC Foundation for the 2020-2021 competition season. LRT gameplay allows teams to compete remotely in live interactive competitions using a web-based portal through RobotEvents.com. The purpose of this document is to outline the technical requirements, equipment set up, and event instructions for registered VRC teams to compete in Live Remote Tournaments.

Previously, traditional VEX Robotics Competition events have been held “in-person” in a single location such as a school, gymnasium, community center, or a myriad of other public venues. By utilizing the RobotEvents.com Live Remote Tournament system, Teams can choose to attend events entirely remotely. This allows teams to compete together while remaining in physical isolation from one another, and additionally allows teams to compete within their region or beyond without the expenses of travel.

Teams participating in Live Remote Tournaments must be proactive and detail oriented in preparing for and participating in these events. Many aspects of the competition that might have been handled by volunteers at in-person events, including proper field setup and reset, and ensuring teams are on the field for their upcoming match are responsibilities that now fall to team members and their designated adult team Facilitator, the coach, or other responsible adult who will be supervising students during the event. Failure to follow proper procedures may result in substantial delays to the event and/or an inability of a team to participate in the event.

In a Live Remote Tournament, VRC Change Up is played by two Alliances – one “red” and one “blue” – composed of two Teams each. Each Team competes on a separate field (i.e., there are four Robots, four Teams, and four fields involved in each Match).

For the full game rules, please consult the current version of the VRC Change Up Game Manual including the section on Live Remote Tournament Rules.

All student and adult participants must abide by the REC Foundation Student Centered Policy as noted in rule <G2>, and the REC Foundation Code of Conduct as noted in rule <G1> of the Game Manual.

General information for Team Advisors is found in the Team Guide. Additional resources for Teams is available at RoboticsEducation.org or by contacting your Regional Support Manager.

**LRT Coach/Mentor Team Facilitator Policy**

The REC Foundation provides a number of remote competition options for teams. By registering and participating in remote competitions, your team is required to perform additional tasks and engage in a heightened level of event preparation. This section outlines the roles and responsibilities for the coach or mentor who registers their team for a Live Remote Tournament.
While remote competitions provide an opportunity for student-centered engagement, many of the challenges with remote competitions result from teams being unprepared (e.g., failing to properly set up their fields or equipment, not reading the Game Rules or other documentation related to Live Remote Tournaments). As a robotics community, we want every participant to have a positive competition experience, which is why we are providing this guidance to coaches and mentors who participate in Live Remote Tournaments.

All teams registered for a Live Remote Tournament will need to appoint a team Facilitator to ensure the integrity of the event. At a minimum, the Facilitator will:

- Be an adult of 18 years or older and not enrolled in high school. The Facilitator can be the Coach, the Primary Contact, or an adult Mentor.
- Provide their full name at the start of the event to the Event Partner.
- The Facilitator will also provide the Event Partner with a day of contact phone number prior to the event.
- Read and be familiar with the current game and the Live Remote Tournament rules as listed in the VRC Game Manual.
- Read all REC Foundation documentation and understand the requirements for teams participating in Live Remote Tournaments, including the LRT Team Instructions and the LRT Field & Technology Inspection Checklist.

The Facilitator must:

- Review all aspects of the event on RobotEvents.com prior to registering and follow up on all communications from the Event Partner in a timely manner.
- **Pre-Event Setup:** Read, understand, and follow all items covered in the LRT Team Instructions and the LRT Field & Technology Inspection Checklist, including correct field setup. If you have a question or concern, you need to raise this issue well before the event.
- **Inspection:** Ensure the team can confirm that the team’s robot is ready to pass an official inspection using the VRC Robot Inspection Form.
- **Safety:** Ensure that all equipment is safely set up and that all local health and safety rules are being enforced; see REC Foundation Covid-19 Policy - Student Safety at Remote Events (found in the Documents tab for all event pages on RobotEvents.com).
- **Match Readiness:** Ensure the team is ready before every match! Actively monitor the match schedule for the team, and ensure the team and field are ready 2 to 3 matches prior to your match; teams must not practice on their field during this time. Additionally:
  - Field is correctly set up with all game elements correctly placed.
  - Confirm that the robot placement is as per the Game Manual.
  - Confirm that the field layout including the LRT Field & Technology Inspection Checklist has been completed and the team remains in compliance for the duration of the event.
  - Confirm that the camera is operational and captures the full field correctly aligned with appropriate lighting.
  - Confirm working audio capability with the event.
Scoring: Per the Game Manuals, any questions of scoring must be raised by Drive Team members only. The Facilitator will not make a ruling or provide any opinion as to any aspect of the Match. This is the sole responsibility of the Head Referee.

Physical Presence: The Facilitator must be physically present at all times at the immediate location where the Live Remote Tournament matches are occurring and may not be in another room or nearby at the site.

Every coach or mentor who registers their team for a Live Remote Tournament should meet these responsibilities. The failure to meet any of these requirements may result in a negative experience for your team and other event participants. In some instances this may result in a violation of G1 and the REC Foundation Code of Conduct. The REC Foundation, our Event Partners and all participating teams need and appreciate your commitment and support in achieving a quality competition experience.

Engaging Your Team & Social Distancing

One of the goals of Live Remote Tournament gameplay is to give teams opportunities to play in exciting cooperative matches while being able to maintain physical isolation from one another. Every LRT event will be automatically live streamed via a YouTube link found on the event’s information page on RobotEvents.com. Sharing that link will allow spectators to follow along with the event with a slight delay from the live event. Teams should only use the LRT system for video and audio in their match, and NOT the delayed livestream.

Teams will be participating from public venues such as gymnasiums, but also classrooms, homes, garages, libraries, and many other non-traditional event locations. Teams should test their camera setup early and be aware of what is visible in their backgrounds. Many teams may choose to include banners, team signs, or other appropriate decorations around their event space. Teams are encouraged to have fun and show their team spirit!

Please be mindful of any health and safety regulations in your area. The health and safety of all participants should be top priority for every team.
Document Overview

The instructions in this guide are divided into five sections:

**Section 1: Technology & Equipment Requirements**

This section will explain the technology and equipment requirements needed to participate in a Live Remote Tournament.

**Section 2: Field and Technology Setup**

This section will explain best practices for setting up your field and equipment. It does not replace the Field & Technology Inspection document, but rather is an annotated guide for meeting those requirements.

**Section 3: Connecting to an Event Procedures**

This section will show the step-by-step procedures teams will follow to connect to an event.

**Section 4: In-Event Procedures**

This section will show the step-by-step procedures teams will follow while in the event.

**Section 5: Troubleshooting**

This section will give guidance on how to solve common issues.

### Section 1: Technology & Equipment Requirements

**Note:** All equipment should be set up and dedicated to a single team in the tournament - teams are unable to share equipment with this format. Please refer to the [LRT Field and Technology Inspection Checklist](#).

#### Technology & Equipment Requirements

- Active and paid team registration on RobotEvents.com
- Full competition field and game elements (VRC)
- Internet access
- It is recommended teams used a wired ethernet connection whenever possible. Computer solely dedicated to using the Live Remote Tournament platform on RobotEvents.com by a single team.
  - Up to date version of Chrome web browser installed with "Experimental Web Platform Features" Enabled
- Connected USB webcam (720p or higher resolution) that can be set up to provide a full view of the field and driver station; a tripod or other device may be needed to hold the camera in place
- V5 Robot with updated firmware.
- Micro USB to USB cable to connect robot controller to computer
  - Teams may wish to use a long (10-12 foot) cord for more flexibility in computer and camera placement
- An additional monitor or TV screen/projector for viewing alliance partner and opponent fields as well as Event Chat from the driver station.
Safety Note: Like an in-person event, Teams must ensure that they can set up their equipment and field safely in accordance with the Game Manual and Safety Rule <S1>.

Section 2: Field & Technology Setup

VRC Field & Camera Setup

- Team’s camera must be placed on the “audience side” of the field, i.e. the Red Alliance Station on the left side of the screen & Goal A should be in the upper left corner of the remote webcam feed. As per rule <LRT1> & <RSE7> in the VRC Game Manual

- The Driver(s), Robot, Controller(s), and complete & unobstructed competition field, including the field perimeter must remain on camera at all times during the match. As per rules <LRT1> & <RSE7> in the VRC Game Manual
  - A starting recommendation is to place your web camera 7 feet back from the field and 7 feet above the level of the field, but the exact camera placement is dependent on your camera and setup.

- Game Elements should be properly set up as shown in the above image. Game elements are always set up the same way no matter what color alliance the team is assigned to in a match.

- Teams are responsible for setting up their own fields. Please keep a copy of the above diagram handy for reference and reset your field in a timely manner.

Field Inspection will take place in accordance with the VRC Game Manual and specifically <LRT7>:
In a Live Remote Tournament Match, Teams must set up their own field in accordance with the layouts, tolerances, and specifications found in the Game Manual and Appendix A.

A. Prior to a Match, a Head Referee will verify each Team’s field layout and request any adjustments as needed. A Team will not be permitted to play in a Match until the Head Referee has approved their field layout; refusal to comply with any requested adjustments in a timely manner may be considered a violation of at the Head Referee’s discretion.

B. Teams are permitted to construct their own field perimeters, in accordance with the Non-Standard Field Perimeter Guidelines found in Appendix A.
   i. If using an unofficial field perimeter, teams may be asked to verify their compliance with these guidelines as a part of the inspection process.
   ii. Official VRC foam tiles (VEX Robotics SKU 278-1502 or 276-7175) must be used.
   iii. The official VRC Change Up Full Field & Game Elements Kit (VEX Robotics SKU 276-6501) must be used.

C. Teams must still utilize their one (1) Preload Ball as specified in rule . The three (3) Balls that would be used as Preloads by the other Teams in the Match are not placed on the field.

VRC Camera & Technology Setup

Computer/Technology Requirements:

- A computer (LRT Computer) with Google Chrome installed with “Experimental Web Platform Features” enabled.
- Note: This computer must be solely dedicated to using the Live Remote Tournament platform on RobotEvents.com and cannot run other video streamlining tools or apps (e.g., Discord, Zoom, etc.) during the event as it can prevent video from appearing correctly.
- Robot controller connected to LRT Computer via micro-USB cable.
- External USB Webcam (720p or higher resolution) connected to LRT Computer
  - Camera is set up to provide a full view of the field and driver station.
  - Note: This cannot be an integrated camera. It must be an external USB camera.
  - Note: It is recommended that teams have enough slack in their camera connection to prevent the unintended movement of the camera, possibly using a 10 foot or less USB extension.
- The camera must be mounted to a tripod, stand, or fixture.
- The field and camera should be well lit with even and consistent light sources.
  - Note: Windows and off-color light sources should be avoided.
Recommended Additional Equipment:

- A large monitor or screen for viewing your partner’s field and the Event Chat from the driver’s station.
  
  **Note:** This may require running a cable from a laptop or computer to a larger screen more conveniently placed.

- External speakers for hearing match sounds and referee/announcer instructions clearly from your driver’s station.

All cables should be taped down to prevent tripping hazards, and the setup for all electronics must maintain the safety of participants as a top priority.

**Example Technology & Field Layout**

This image is a sample diagram of the equipment you will need to participate in a Live Remote Tournament.
Labeled items:

1. Laptop or computer
2. MicroUSB cable for connecting V5 controller to computer
3. USB extension cable to connect computer to camera. (This may not be needed depending on your setup/equipment)
4. Camera tripod or stand
5. USB web camera
6. Video cable to connect to a large display
7. Large display for viewing the match from the driver’s position

Pre-Event Camera and Video Set-Up

Teams should test their computer setup ahead of the event, including webcam, microphone, and speakers. Testing in advance gives teams time to troubleshoot issues before competing.

It is highly recommended that teams utilize the solo practice system on remote.robotevents.com to test their robot’s controller connectivity, autonomous function, and camera setup. Solo practice allows a team to test Driver and Autonomous modes as well as view their webcam. Remember that often what a webcam will see in terms of visibility and brightness may not match what your eyes see, so use the webcam view in Solo Practice to make adjustments to lighting or viewing angles as needed.

These screenshots include the button for the “Solo Practice” feature in the remote practice system, as well as the panel for testing different robot modes. Your webcam feed will also be shown on screen to assist you in checking your camera settings.

If you are not able to view your webcam or get your computer to work on remote.robotevents.com please contact centralsupport@roboticseducation.org or use the chat function on the bottom right-hand corner of the screen for assistance.

It is recommended that teams set up a large TV/monitor, if available, to be able to duplicate their monitors to be able to view other teams’ fields better. Teams may also consider using an external set of speakers pointed at the driver’s station so teams can clearly hear the audio stream.
Team Communications

Teams should make use of the Live Remote Tournament in-event private chat feature in the upper right corner of the interface to contact the Tournament Operator and other teams. When teams use the chat feature to talk directly with each other, that information is not shared with other teams or the Tournament Operator. A red dot indicator will appear next to the chat button to indicate that a team has an unread message. Teams should use this private chat for strategizing with future match partners. In each match, there is also a match chat which is used by the teams in the match, as well as scorekeepers and referees to ask teams questions.

Teams should always have someone monitoring their chat windows in case they are asked a question by event staff or another team, or if event staff post information into the Event Chat.

This is a detail of the private chat icon in the upper right corner of the LRT interface. Clicking on the icon will bring up a list of teams and volunteers in the Tournament to send a private message. The red icon indicates that you have an unread private message.

For emergency communications (i.e., a team’s Internet goes down and they cannot communicate with the event) teams should provide the Event Partner with the contact information for the team Facilitator, the coach, or other responsible adult who will be supervising Students during the event. The Event Partner’s event day contact information is found on the event’s General Information page on RobotEvents.com.

Section 3: Connecting to Event Procedure

Step 1: Registering for the Event

Teams need to be registered for the correct Live Remote Tournament on RobotEvents.com. To find events, visit www.robotevents.com and search by program and event type “Live Remote Tournament.” Teams are able to attend LRT events outside of their geographic region, however some events may be restricted to only teams from that region. The event’s information page should state if any such restrictions are in place.
Step 2: Logging into the LRT System

On the day of the event, the **Primary or Secondary Contact** on RobotEvents.com for the registered team needs to be logged into their RobotEvents.com account via the Google Chrome web browser on the same computer the team will be using for audio and video for the Live Remote Tournament.

Once logged in, the coach should go to remote.robotevents.com and select the desired team registered for the event from the dropdown menu. If you have selected the incorrect team, you may be able to change it via the gear icon on the top right-hand side of the screen and select “Change Teams.”

![Image of drop-down menu showing teams]

*All teams in a coach’s RobotEvents.com account should appear in a drop-down list. Only one team can be selected per computer.*

Step 3: Setting up Audio & Video Inputs, Robot Controller

Once the team logs into remote.RobotEvents.com, the team will be asked to connect their webcam (and be prompted to make sure their field fits in the purple outline) and select their microphone. The teams will be asked to select their Autonomous Program via their V5 controller in order to be able to connect the controller to the system.
Step 4: Joining the Live Remote Tournament

If the team logs on before the Tournament Operator has started the event, the team will be sent to the practice match lobby at remote.robotevents.com. This is a great opportunity to test your camera setup and practice driving with other teams logged into the practice system.

Once the Tournament Operator has started the event, the team will see a pop up on the bottom of their screen in the remote.robotevents.com system that will allow them to join the event by selecting “Go to Event.” Once a team joins the event, they will be automatically placed into the Event Lobby. In the Event Lobby, teams can view the match list on the left-hand side of the screen. Teams can communicate with the other teams and event staff via both the public Event Chat on the right-hand side of the screen and private chat by clicking on the icon in the upper right-hand side and selecting who they wish to chat with. This is useful for discussing strategies with future alliance partners. The team will remain in the lobby until the Tournament Operator starts a match the team is participating in.
This is a view of the lobby screen, with the match list on the left and event chat on the right. A team’s number will be highlighted in yellow for their upcoming matches.

Section 4: In-Event Procedures

Step 1: Joining a Match

Note: Teams will be automatically joined to the match when the Tournament Operator clicks on the “Start Match” button.

Step 2: The Ready Check

When the Tournament Operator asks for a “Ready Check,” click on the “Ready” button to show that the team is ready for the match. This is analogous to giving the referee a thumbs up at an in-person event to show they are ready to start their match. Teams should check that their robot, field, and video connections are ready before confirming the Ready Check. Teams should contact the Tournament Operator via the match chat if there is an issue preventing them from competing.
Step 3: Match Start/Autonomous Period

Once the match is started, there will be a 5 second countdown on the match timer along with an audio prompt. All teams will run their autonomous programs simultaneously. Once the timer reaches zero, the autonomous period will stop and robots should automatically cease movement. The autonomous period will then be scored to check for not only the assignment of an Autonomous Bonus, but also the extra Win Point for each alliance that completes their home row.

Step 4: Driver Controlled Period

Once the Autonomous period has been scored, there will be another 5 second countdown on the match timer followed by the 1:45 driver-controlled portion of the match. At its conclusion, robots should cease operation automatically.

Step 5: Scoring the Match

Once the match is completed, the scorekeeping referees will record the scored objects in each position. You may be asked to move your robot out of the way if it is blocking the view of a potentially scored object or verify a scored object in the match chat.
On the right-hand side of the screen, you will see a scoring interface that will mirror the scoring interface used by the scorekeepers of the event. Once the score is settled by the volunteers, you will have an opportunity to "Confirm Score" – this affirms that the placement of scoring objects on your field is correct with what the scorekeepers have determined. Any discrepancies should be immediately put into the match chat so it can be investigated by event staff. This helps both teams and event staff clearly communicate scoring issues.

A team’s confirmation is final and cannot be undone. The button will turn grey once clicked. Remember that this feature only confirms the objects on your field and not how those objects interact with your partner’s field. Teams do not need to confirm a score in order for an event to proceed. The match can still be ended and finalized without confirmation.

![Confirm Score Button](image)

The above image shows a team’s game object placement. The “Confirm Score” button above the field diagram is in grey, indicating that this team has either already confirmed their score with event staff or the match is still being scored by referees. The match chat for alerting staff to discrepancies is below the field diagram.

**Step 6: Finalizing the Score**

Once all objects are scored and the score is announced the Tournament Operator will select “Finalize Score” which will then send the team back to the event lobby space. Teams should then reset their field in preparation for their next match.

**Step 7: Repeat for Additional Matches**

Repeat the previous steps for each Practice and Qualification Match until all of your team’s matches are complete.
Step 8: Finals Matches and Alliance Selection

Once the last Qualification Match is completed, the Tournament Operator will start Alliance Selection. Please refer to the Game Manual for this process. All teams in a position to be Alliance Captains will receive prompts in turn asking them to select an Alliance Partner. Teams will receive invitations to whether accept or decline on their own computers and are responsible for answering those invitations promptly.

Unlike in-person events, the Live Remote VRC Alliance Selection process does not require facilitation by an Emcee. Teams should make notes on which teams they might want to ask during the event so they can proceed quickly through Alliance Selection. Remember to have a few backup teams you may want to ask to be your alliance partner in case your first choices are not available.

![Alliance Selection Screen](image1)

This is a view of the Alliance Selection screen from the perspective of someone selecting a partner.

![Partner Invitation](image2)

This is a view of the Alliance Selection screen from the perspective of someone who has been selected as a partner and is given the choice to Accept or Decline. This cannot be undone.

Once Alliance Selection is complete, Elimination Matches will be automatically generated. These matches can be found on the left-hand side of the screen once the Tournament Operator completes the set up and verifies all teams included in finals. This will follow the bracket system outlined in the game manual.

Teams will likely be given a few minutes to strategize with their alliance partner before Elimination Matches begin.
Step 9: Elimination Matches
Continue onto the Elimination matches and play them using the same procedures as Practice and Qualification Matches.

Step 10: End of Event
Once all the Elimination Matches are completed and scores are finalized the event will end. When the Tournament Operator ends the event, the team will be sent back to the RobotEvents.com information page of the event they just participated in.

This is what teams currently see after an event has been ended and finalized.

Congratulations! You have completed a Live Remote Tournament!
Section 5: Troubleshooting

Audio

Audio Feedback

Problem: In the Initial set up window, when a team connects audio, they experience audio feedback

Solution: Selecting “None” as Audio Option will immediately prevent this feedback. Note: once teams select “none,” to reselect audio in the future, teams will need to go through the set-up window again.

Missing Audio

Problem: The team cannot hear event audio/announcer/referees.

Solution: Have the team verify that the audio settings on the computer are set up properly. Confirm that the correct output device has been selected and that it is not muted. All teams should be using external speakers to listen to audio from the Live Remote Tournament. Note: There may be instances that there will be no audio, but you will always be able to hear game sounds and buzzers.

Solution: If the problem persists, connect to a different networks available to you, preferably one without a “website authentication” security feature.

Solution: Ask if they team is using school internet. If so, have the team ask their faculty IT department to setup all the needed permissions needed to participate in the event.

Video

Team Video Display

Problem: Team cannot see live video feed from their web camera. Instead, the teams see one of the following:

1. Black Screens for all teams in the match:
   a. Solution: Go through the Audio and Video Selection tool again by refreshing the page. If the team can see the webcam video in the set up window properly have them finish the setup process by clicking “Continue.”
   b. Solution: If they see a black screen on the preview within the set up window have the team verify that Chrome is giving access to the webcam in Chrome’s settings. To confirm this, click the lock icon on the search bar to find the video/audio sources being enabled in Google Chrome. If this is enabled have the team go to practice.robotevents.com to make sure their webcam is working properly.
2. A Webcam Driver Error (this error is indicative that your webcam driver has stopped working properly, i.e., a black screen with three dots or a black screen with an error message):
   a. **Solution:** Change the external webcam
   b. **Solution:** Remove the camera as a device from the computer and then re-add it to download the drivers within the settings of the computer.
   c. **Solution:** Select the computer web camera to confirm the computer is able to support webcam sharing within the Live Remote Tournament System.

3. If the above does not work, the problem can be related to Internet/Firewall:
   a. **Solution:** Try a different network available to you, preferably one without a “website authentication” security feature.
   b. **Solution:** Ask if team using school internet. If so, have their faculty IT department on site setup all the permissions needed to share web camera within the Live Remote Tournament System.

### Partner/Opponent Video Display

**Problem:** The team cannot see live video feed from another team. Instead, the team may see one of the following:

1. Black screens for all of the other teams:
   a. **Solution:** Have the team refresh the entire page and wait 8 seconds.
   b. **Solution:** If a team is using a wireless connection for internet, it is recommended that the team change to a hardwired connection.
   c. **Solution:** Have the team use a different computer with a higher processing power (to be able to receive video from other teams).

2. See black screens for some of the other teams:
   a. **Solution:** Have the team that is not showing video use a different computer with higher processing power.
   b. **Solution:** Have the team and Event Partner (EP) ensure they are not running anything on the device outside of the Live Remote Tournament System. For example, ensure the teams are not using any applications for streaming AND/OR coding software.

3. Team sees video feed but it is highly pixelated:
   a. **Solution:** Verify that the team have a wired connection to internet.

### Camera Selection

**Problem:** The team can’t select their external web camera.

**Solution:** On the left hand corner of the Google Chrome search bar there is a lock icon that you will select to see the permissions given to Google Chrome. You will select the dropdown next to “Camera” and select “Ask (default).” Next, restart Google Chrome, and then relaunch the Live Remote Tournament system.

**Solution:** Clear cache & cookies on Google Chrome and then close Google Chrome. Next, restart Google Chrome, and then relaunch the Live Remote Tournament system and log in.
Accessibility

Buttons

Problem: The team is not able to select the “my field is ready” button. The “My Field is Ready” button is greyed out after the team has selected “audio” and “video” sources, and have completed the controller pairing process correctly (if applicable).

Solution: Select a different audio source in the set up window by refreshing the page.

Solution: Have them select an audio source as “none” in the set up window.

In-Match Timer

Problem: The team’s in-match timer is not synchronized with the timers of the other teams or EPs.

Solution: The team must select the computer’s time/clock settings and make sure that their clock is synchronized with the time zone that they are in (see below screenshots). The team should select the “sync now” button. Next, restart Google Chrome, and then relaunch the Live Remote Tournament system.

![Date & time settings](image-url)

*Some of these settings are hidden or managed by your organization.*

Current date and time

3:01 PM, Monday, January 4, 2021

Set time automatically

- Off

Set time zone automatically

- Off

Set the date and time manually

Change

Synchronize your clock

Last successful time synchronization: 12/12/2020 5:01:11 PM

Time server: Free-running System Clock

Sync now
VRC-Controller/Autonomous Troubleshooting

Errors

Select Valid Program

Problem: The team gets a “select a valid program” error during the “Connect Controller” setup portion of the set up window.

Solution: Have the team verify that the latest firmware is updated on everything including the controller. If not, have team update firmware re-download the code onto their robot as needed.

Solution: Ensure the program on their controller is running before they select “connect controller.”

Solution: Clear cache & cookies on Google Chrome and then close Google Chrome. Next, restart Google Chrome, and then relaunch the Live Remote Tournament system and log in.

Solution: Use a different controller (after code is downloaded to it).
Invalid Program or Failed to Open Serial Port

Problem: After selecting ‘Camera device’, ‘Audio Device,’ and connecting controller, a pop-up error appears stating: “Invalid program has been selected” or “Failed to open serial port.”

Solution: Use the following steps:

1. Clear cache and cookies
2. Double check and make sure “Experimental Web Platform Features” are enabled
3. Close chrome
4. Reopen Chrome and restart the login process for remote.robotevents.com
5. Plug in robot to computer and turn on robot

Solution: Close all programs that use a connection to the Robot Brain/Controller (e.g. coding software) and then relaunch the Live Remote Tournament system and log in.

Solution: If using a USB HUB, connect the controller directly to the computer.

Solution: Switch to different USB port on computer.

Solution: Switch out cable with another.

Solution: Use the following steps:

1. Log out of the Live Remote Tournament System
2. Clear cache and cookies
3. Turn off Robot
4. Close Google Chrome
5. Plug Robot into Computer
6. Turn on Robot
7. Start Google Chrome
8. Log in to remote.robotevents.com
9. Click on “join event”
10. Run Program on Controller
11. Select audio and video as applicable
12. Select connect controller

Solution: Re-download the program on the brain.

Solution: Switch out the controller.
Autonomous Issues

Autonomous Running

**Problem:** The teams have issues with their autonomous running. For example, autonomous not running at all, autonomous not running for the full 15 seconds, etc. The teams should follow the following steps to resolve the issue:

a. If the team has a programmable Pre-Autonomous:
   i. **Solution:** The team will need to deactivate this and set up their robot program without the Pre-Autonomous. Attached is a link from the VEX Forums explaining the process for this: [https://www.vexforum.com/t/competition-code-and-user-created-tasks/88616](https://www.vexforum.com/t/competition-code-and-user-created-tasks/88616)

b. If the team does not have a programmable Pre-Autonomous:
   i. **Solution:** The team should copy their current code into a new file in VEXcodeV5, VEXcodeV5Pro, or VEXcoding Studio
   ii. **Solution:** Ensure the team is running the most up-to-date firmware on the robot and the controller.
   iii. **Solution:** Ensure the clock on the computer is synchronized to the time zone they are located in. Refer to “In-Match Timer” section.
   iv. **Solution:** Have the team review their code to ensure it is written properly.

Accessibility

Alliance Selection Process

**Problem:** The teams are not able to select an alliance partner and/or accept alliance invitations due to buttons being missing or greyed out.

a. Alliance Selection has not started:
   i. **Solution:** Before the EP begins alliance selection, all teams must refresh their browser. Once all the teams have refreshed, the EP can begin alliance selection

b. Alliance Selection has Started:
   i. **Solution:** If the team is the alliance captain, the team should refresh the browser and the “choose partner” button should appear next to each time available to be selected.
   ii. **Solution:** If the team is being picked by an alliance captain, the team should refresh their browser. If the team is being picked AND refreshing doesn’t populate the buttons, the EP should cancel the team's invitation and have that team select a partner again.
Other

**Problem:** Camera View Seems to “Zoom In” During Event

**Symptoms:** Camera view was fine during inspection but seems to “zoom in” at some point during the LRT competition

**Cause:** Drop in processing power may cause a team’s outbound video feed to downgrade resolution which may in turn changes the aspect ratio.

**Solution:** Team will need to readjust camera to reframe field properly closing down background process may free up processing power.

**Problem:** None of the above problems or solutions are applicable to me. What should I do?

**Solution:** Call the Operations Live Remote Tournament Support Staff (903-457-0444) to assist or use the message icon on the bottom right hand side of the Live Remote Tournament system to get in contact with the Support Staff.