

## VelociDrone Combat Guide

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### Classic Capture the Flag Quick Guide

VelociDrone's Classic/Capture the Flag (CCTF and CTF) mode is a fast-paced multiplayer combat game where teams race drones to steal the opponent's flag and return it to their base while defending their own.

#### Game Mode and Objective

For the 2025 – 2026 season, Fenworks Schools will be using the Classic Capture the Flag game mode. VelociDrone's Classic Capture the Flag (CCTF) is a team-based game in which players must retrieve the flag from the opposing team's side of the arena and bring it to their own team's goal. The player carrying the flag is highlighted to their team and has an effect on their drone to identify them as the carrier to the opposing team. Teams must work together to protect team members carrying the opposing team's flag or to stop the opposing team from getting away with their flag.

Classic Capture the Flag has one major difference from the other CTF game modes. The team's goal is only active when the team's flag is in the home position. This can lead to a situation in which neither team can capture the flag or score a point, forcing teams to seek out and take out the enemy flag carrier.

#### Core Objectives

- Capture the Enemy Flag: Fly into the opponent's base, grab their flag, and return it to your base/team's goal.
- Defend Your Flag: Prevent opponents from stealing your flag by intercepting them mid-flight.
- Score Points: Deliver the enemy flag to your base's goal to earn points. The team with the most flags captured at the end wins.

#### Videos

Review the videos below that VelociDrone made for the Combat Drones. Please note that the videos are a few years old, so some aspects might be outdated/adjusted.

- [Combat Getting Started](#)
- [Talking about the Dominator Combat Quad](#)
- [Classic Capture the Flag](#) – This is the mode we will be doing, but watch the [Capture the Flag](#) video as well to learn more about the game mode as a whole.

#### Core Gameplay Mechanics

- Spawn Locations:
  - Spawn Points:
    - Team Base Spawners
    - Neutral Midfield Spawners
  - Spawns are random, cannot be seen by opponents (to prevent spawn camping)
  - Spawns are instant
- Team Base: Each team has a base with:
  - Flag Holder (Glowing orb in team color)
  - Capture Zone (Black Hole)
  - Team Forcefield (allows shots and passage from team members only)





- Flag Pickup: Fly through the flag marker in the enemy base.
- Flag Drop: If you crash or get shot down, the flag drops where you crashed.
  - General: The flag will be dropped at the point where the carrier crashes if they are knocked out with power-ups or crashes. A flag will remain at its dropped location for 20 seconds before returning to its home position. A dropped flag can be picked up by the enemy team or returned home by the owning team immediately.
  - Team Barrier: Flying into a friendly team barrier while carrying the flag will return it to its home position.
- Respawn:
  - Elimination: After being eliminated, you respawn at your base after a short delay.
  - Stuck: If you somehow get stuck on the map, you can click “r” on the keyboard to respawn. If you have the flag, it will remain there for 20 seconds, then return to the home position.
- Power-Ups: Combat maps often include boosts like speed, shields, or weapons to give you an edge. If you fly through a powerup, it will replace the previous one.
- Forcefields: Team can pass through and shoot through own base shielding; enemies cannot.
- HUD & Communication
  - HUD Flags Display: Shows status of your team’s flag (Home / Dropped / Carried)
  - Voice Announcements: Only for your own team’s flag status
  - Audio Cues: Flag captures, drops, and return triggers unique sound effects
  - No Mini-Map: Teams must communicate verbally to locate dropped flags

### Strategy Tips

- Balance Offense & Defense: Assign teammates to attack while others guard your flag.
- Intercept Routes: Learn common flight paths and cut off opponents before they reach your base.
- Team Communication: Coordinate attacks and defenses with your team for maximum efficiency.
- Map Awareness: Memorize shortcuts, tunnels, and obstacles to outmaneuver opponents.
- Adapt Quickly: Switch roles between attacker and defender depending on the match flow.
- Stay Calm Under Pressure: Crashes and respawns are part of the game—recover fast and rejoin the fight.
- Power Ups: Mines - can be placed around flags; take 3 shots to destroy
- Flight Tips: Avoid flying in straight lines. Use racing/freestyle skills for evasive maneuvers. Lead shots due to the projectile travel time

### Game Settings

- Quad: Dominator Quad
- Game Setting: Combat – Classic Capture the Flag
- Game Duration: 5 minutes
- Auto Arming: Checked
- Difficulty: Easy (the first one)
- Wind Settings
  - Wind Strength: 0



- Turbulence: 0.000
- Gust Frequency: 0.000
- Track: See the Fenworks Platform for the Track of the Week
- Team Colors:
  - The host will click on “Menu” in the bottom right once the lobby has been made
  - The host will click on “Session Player List.”
  - The host will click on any color for either team and notify each team what color they are.
  - Once the host clicks start, the colors on the track will change color to reflect each team’s color.

### Power-Ups

Item	Quick Description
Random Power Up (White)	Grants a random weapon or ability
Ice Shot (Blue)	1-hit kill, sniper-like shot
Pyro Shot (Orange)	2-hit kill, causes prop damage + smoke
Volt Shot (Yellow)	2-hit kill, causes battery sag (slows enemy) + smoke
Speed Boost (Green)	Temporary speed increase
Signal Jam (Orange)	Scrambles HUD of enemy for 5 seconds + volt shot power up
Thunder Wave (White)	Area of Effect (AoE) 20m radius + volt shot power up
Homing Shot (Purple)	1-hit homing shot, low turning radius
Trip Mine (Pink)	Instant Kill + 3 shots to destroy

### Scoring

- Reporting: Screenshot scoreboard at the end of the match and upload to Fenworks Platform
- Scoring: Most flag captured
- Tiebreaker: Most Team Points, then Most Team Kills

Action	Points
Flag Captured	10 Points
Kill (Drone Destroyed)	3 Points
Hit (Partial Damage)	1 Point

**Note:** Deaths do not subtract from your score.

### Match Conduct & Integrity

#### Fair Play Required:

- No spawn camping
- No exploiting map glitches

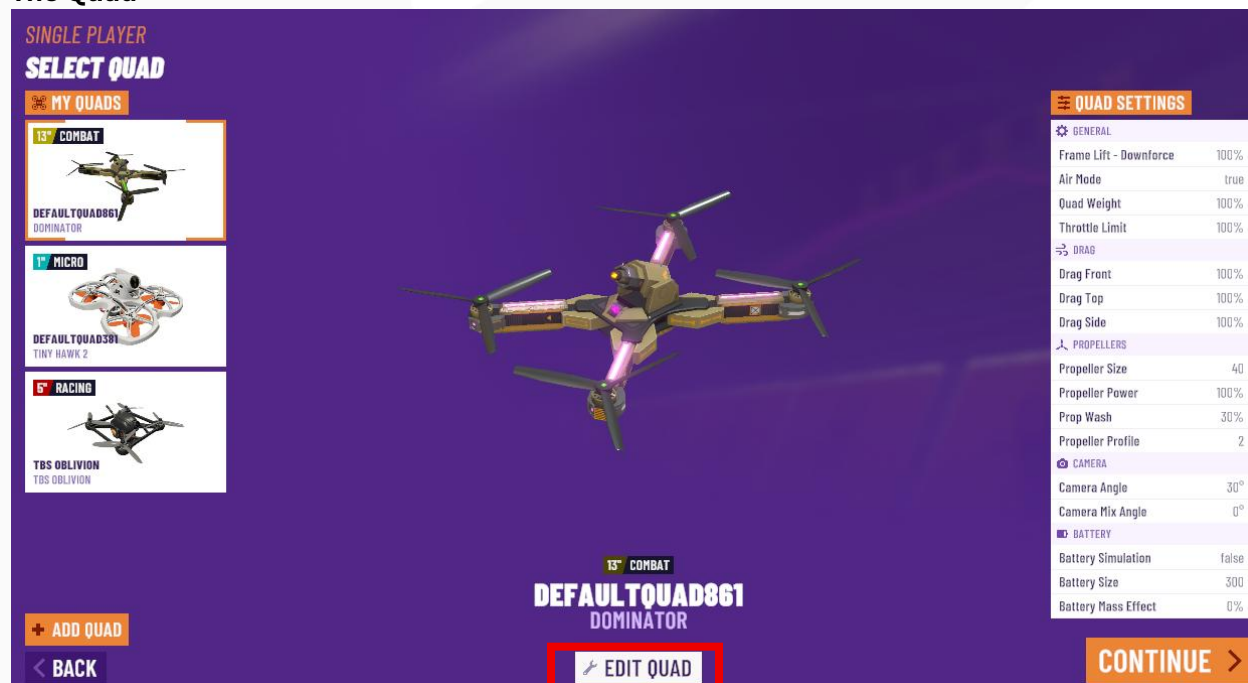
## VelociDrone Manual Classic Capture the Flag (CCTF) Guide

\*\*\*The following sections are taken from the VelociDrone Manual and condensed to just the parts about CCTF. Photos have been updated to the newest VelociDrone Version as of the date listed above. To see the full manual, click (Pages 44-66.)\*\*\*

### Combat

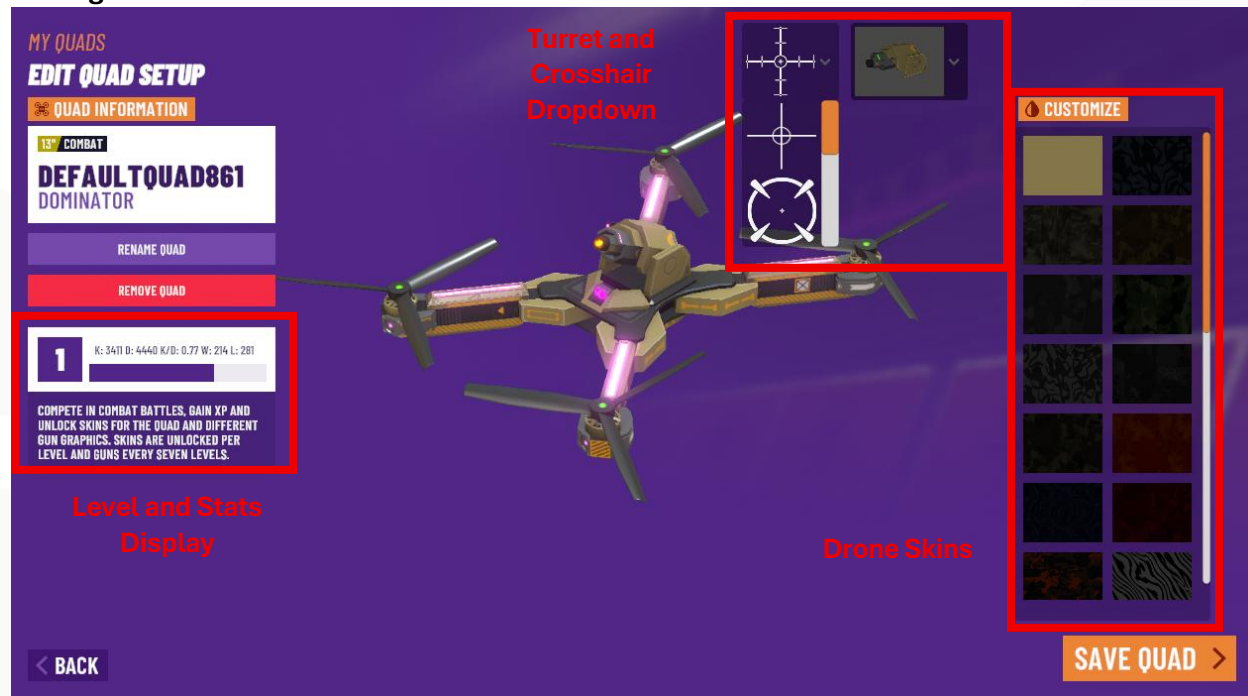
Combat is a multiplayer exclusive gamemode made available when you purchase the Combat premium content pack. You can use any quad to play combat but we designed and created the Dominator quad (pictured below) specially for combat. With the size of a beast class and the speed of a micro class, the Dominator is an easier target than any of the other models in VelociDrone. However, FPV combat is much harder than it looks. Your aim and ability to predict your opponent's movements are put to the test against the unrivaled maneuverability of a quad all whilst having to stay airborne and not get taken out yourself. Combat is a whole new challenge.

### The Quad



The Dominator Quad in the Model Selection Screen

## Editing the Drone



Edit Drone Screen

## Skins

The Dominator has 30 skins to choose from that change its appearance. Skins are earned by playing combat to gain enough experience to level up. As you climb in levels the skins become more flashy and detailed so you can really show off your combat prestige! To select a skin, click on the “Skins” button on the right of the screen under the “Edit Settings” button when you have the Dominator quad selected. The Dominator can be further customized with 6 turrets to choose from as you grow in experience and levels. Every seventh level you will unlock a new turret which changes the appearance of the Dominator, setting you further apart from the rest. To change the Dominator turret, click on the turret dropdown which can be found at the top of the screen to the left of the skins panel (pictured above).

## Turret and Crosshair Dropdown

When you begin a combat game mode the crosshair is auto enabled. If you have not selected your crosshair of preference, it will use the default crosshair (see above, crosshair at the top of the dropdown). You can choose your crosshair from the dropdown next to the turret dropdown when you are in the model selection screen and have the Dominator selected. Alternatively, if you are in a lobby and the crosshair is enabled you can hold the Shift key and press the H key to cycle through the available crosshairs. You can toggle the crosshair on and off by pressing the H key.

## Level and Stats Display

When you have the Dominator selected in the model selection screen your combat level and stats can be seen at the top of the screen to the right of the models list. The badge on the left changes when you level up, becoming more decorated as you reach higher levels. The number to the right of










the badge is your level. The XP bar shows the total experience needed to reach the next level; the blue bar shows your progress to the next level. Below the level and experience are your player stats. "K" shows your total kills or knockouts. "D" shows your total deaths or downs. "K/D" shows your kill to death ratio the higher the better. "W" shows the total combat rounds you have won, and "L" shows the total combat rounds you have lost. To play combat you must be in multiplayer. When creating a combat session, be mindful of the model you have selected as players will only be able to join if they are using the same model as you. We enforce all joining players to use the same model as the host to ensure a level playing field in terms of model performance. Combat game modes are only available on the PolyWorld scenes: PolyWorld, Combat Canyon, Empty PolyWorld and Dynamic PolyWorld.

### **Power Ups**






At the core of combat mode you have the power ups. Glowing icons that imbue your quad with the power to shoot, fly faster or fend off damage. Power ups can be identified by their unique colour and icon. Each power up is listed and explained in detail below. Learn how best to use each of these to dominate in your combat lobbies.

In order to use the power ups ensure you have decided which fire method to use. You can set up a button or switch in the controller setup for "Fire" which when pressed will use your stored power up. Alternatively the X key or the spacebar can be pressed to use your power up. Holding the button will allow for continuous firing. Crashing or being knocked out by a player will remove any power up you currently hold.



Power Up Name	Description	Image
<b>Random Power Up (White)</b>	<b>Grants a random weapon or ability</b> The random power up will give you one of the following power ups: ice shot, pyro shot, volt shot, or homing shot. There is a 90% chance to get one of ice, pyro or volt shot from a random power up. This is a good power up to get when you are in the midst of a fight and need a power up quickly.	
<b>Ice Shot (Blue)</b>	<b>1-hit kill, sniper-like shot</b> Ice shot is a slow firing but powerful weapon. It will knock out a player with a single hit. Picking up ice shot will give you 8 rounds that fire at 2 shots per second. The shot speed is faster than any of the other shot power ups which makes it harder to master than pyro and volt shot as you have to adjust how you aim and predict your opponent's movements.	
<b>Pyro Shot (Orange)</b>	<b>2-hit kill, causes prop damage + smoke</b> Pyro shot is a faster firing weapon but takes two hits to bring down an opponent. When you hit a player with pyro shot, they will receive 100% prop damage, and the Dominator will begin to smoke to indicate that they have been hit. You must hit a quad inflicted with the pyro shot effect again to knock out the player. A player that has been hit with pyro shot can heal or repair their quad by flying through a recharge gate or a repair pack. Pyro shot gives you 20 shots and has a fire rate of 4 shots per second.	
<b>Volt Shot (Yellow)</b>	<b>2-hit kill, causes battery sag (slows enemy) + smoke</b> Volt shot is the fastest firing weapon at 4.4 shots per second and has the largest ammo pool of 25 shots. Similarly to pyro shot you need to hit an opponent inflicted with the volt shot effect again in order to bring them down. A player hit once with volt shot will have their battery output reduced and the Dominator will begin to smoke. A repair pack or flying through a recharge gate will remove the volt shot effect.	
<b>Speed Boost (Green)</b>	<b>Temporary speed increase</b> Speed Boosts increases the voltage output of the battery and motor torque whilst reducing drag which allows the Dominator to reach up to and over a 50% increase in speed. Speed boost overrides the effects of volt shots allowing you to outpace attackers.	

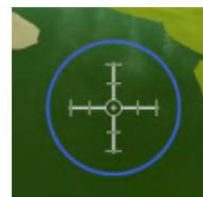


<b>Signal Jam (Orange)</b>	<b>Scrambles HUD of enemy for 5 seconds + volt shot power up</b> Signal jam is one of two powerful areas of effect power ups. All enemies within a 20-meter radius of the point of fire will experience camera interference (see right). A huge particle-effect of arcing electricity and a blue aura emit from the user's model. Once you use signal jam your quad is immediately given the volt shot power up allowing you to pick off your surrounding enemies while their vision is impaired. Enemies under the effect of signal jam are indicated by sparking electrical particles on their model.	
<b>Thunder Wave (White)</b>	<b>Area of Effect (AoE) 20m radius + volt shot power up</b> Thunder wave is the second area of effect power up acting as a wide range volt shot. The user emits a particle effect (see right) similar to that of signal jam, arcing electricity and a purple aura. All enemies within a 20-meter radius are afflicted with the effect of volt shot. The user is immediately given the volt shot power up. Enemies that were hit with the initial effect can be knocked down from a single hit with volt shot unless they had a power shield active. Weakened enemies will be indicated with the smoke effect.	
<b>Homing Shot (Purple)</b>	<b>1-hit homing shot, low turning radius</b> Homing shot is a lock on missile that will knock down an enemy on hit. The shot will only lock onto an enemy if you are looking in their direction. If a homing shot has locked onto you the crosshair in the center of the screen will turn red and a high-pitched beeping noise will play. A target has time to react to a lock on and can take evasive action to dodge the shot as it has a set turning speed. The turning speed of homing shot is decreased in higher difficulties to reduce its power.	
<b>Trip Mine (Pink)</b>	<b>Instant Kill + 3 shots to destroy</b> Trip mine will drop a mine at the point of fire. The mine is inactive for 1.2 seconds after being placed after which it activates and can be triggered. An energy field surrounds the mine which indicates the proximity that will set off the mine (see right). If the mine is placed in a way that the field or the mine intersects with an object, the terrain or a combat flag / goal / control zone then it will detonate after the 1.2 second activation delay. The trip mine has a 5-meter explosion radius that will knock out any player, friend or foe, unless they are equipped with a power shield. Trip mines can be set off from range by hitting them 3 times with ice, pyro or volt shot. The trip mine is a neutral weapon as it can hit any player regardless of team or who placed it. The trip mine can be a useful defense tool but fly with caution when placing them as you may end up taking out yourself or a teammate.	  Deployed Trip Mine

## Combat UI and HUD

### Crosshair

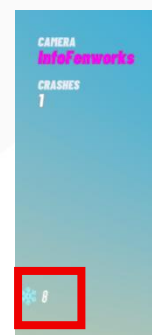
The crosshair is placed in the center of the screen and indicates where your shot will hit. Be sure to account for your target's speed and direction as shots have a travel time. When using the "Circle" ammunition display, a ring will appear around the crosshair indicating how many shots you have remaining of your currently held power up.



Crosshair with circle ammunition display

### Power Up

Your currently held power up is shown on the left of the screen along with the number of charges or shots you have left. Not all power ups are held as the power shield, speed boost and repair pack are instantly activated on picking them up. Instinct activating power ups do not replace or remove your currently held power up but picking up another held type will replace your held power up.



### Game Notification Feed

Below the power up display on the left is the game notification feed. This is where game updates will be displayed, primarily hits and deaths of players. A notification will display when one player hits another with a power up, the power up used and whether the player was knocked out as a result indicated with a skull icon. In game modes that use flags flag notifications will appear in the feed to show which player has interacted with the flag. There are a multitude of other flag status notifications keeping players informed about the flags at all times.



Ammunition display and game notification feed

### Shield Bar

The shield bar is found on the bottom left side of the screen in game modes where the power shield is enabled. The bar is empty by default and when you pick up a power shield will fill one third. You can store up to 3 charges of the power shield which you can keep track of using the bar. When using the "Line" ammunition display, a line will appear above the shield bar to indicate the number of shots remaining of your currently held power up.



Shield bar with line ammunition display

### Score

The score is displayed at the top of the screen in the centre. In free for all game modes (deathmatch, king of the hill) your score, indicated by colour, will always be displayed alongside the top scoring player. If you are the top scoring player then the next highest scoring player is displayed. In team game modes the team scores are displayed in their respective colours. The scores of individual players can be found in the scoreboard which can be shown by pressing the tab button to toggle in on and off.



Score display

### Scoreboard

The scoreboard shows each player and their colour. The number in orange is the number of points that they have accumulated which will hold a different meaning depending on the game mode. In deathmatch game modes and king of the hill the number is their game score. In other team based games the number represents their team contribution score. The number at the top of the teams rankings will be awarded more experience as the most valuable player. The 3 numbers displayed afterwards are the kills, deaths and hits that each player has accumulated.

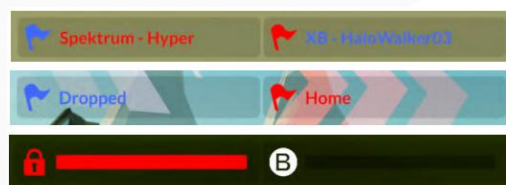
RED TEAM VICTORY

		K/D/H
IMMORTAL	0	17 9 15
XB - HALOWALKER03	0	14 9 10
SPEKTRUM_LEVIATHAN	0	4 4 1
XB - CMAD	0	0 0 0
FACTOTUM	1	9 6 1
ASB	1	6 10 4
NO_CAPT_KENRICK	1	3 8 5
SPEKTRUM - HYPER	1	3 11 3

Scoreboard at end of game screen

### Flag State

The state of the flags and zones can be found at the bottom centre of the screen. The capture progress of each zone is shown at all times when playing control. The bar colour indicates which team is capturing when the zone is neutral. The zone icon is white when the zone is neutral and when owned by a team the icon is the same colour as the owning team. When a zone is captured it locks and the zone icon will change to a lock icon. Whether a flag is home, dropped or carried is constantly displayed in game modes that use a flag. When it is picked up, dropped or returned a status message will appear in the centre of the screen above the crosshair.



Flag and Zone status indicators

### Flag Indicator

A flag indicator is placed on a player carrying the flag that can only be seen by players that belong to the same team as the flag carrier. This notifies a team which player is carrying the flag and where they are allowing a team to coordinate and protect their flag carrying teammate.



A team member carrying the flag highlighted by player indicator

### Spectator Mode

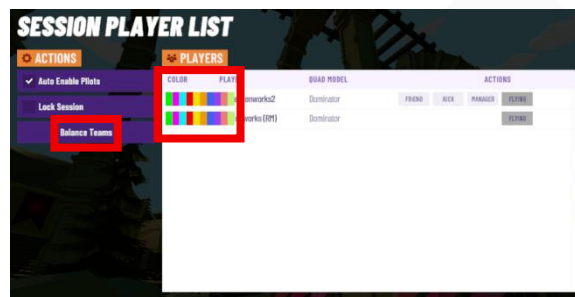
While in spectator mode the players are listed on the left of the screen. Their combat level, currently held power up and number of shots remaining are displayed alongside their name and colour. Right clicking on a player name in the list will show you their first person view. Left clicking will change the third person camera to focus on that player. If combat is being played with the dominator, clicking with the middle mouse button will show the follow camera, a third person view directly behind the selected players model.



Follow camera view

### Team Colors

Team based game modes such as team deathmatch, capture the flag and control can only be played with two teams. To set up teams, all flying players in the session should be one of any two colours. As the host of a combat session you can organise teams in the player session panel. The host is able to change player colours by clicking on the colour of a player in the player session panel and clicking on the chosen colour from the available selection. A balance teams button can be found at the bottom right of the player session panel when in a combat scene. This sets the player colour of players in the session based on their combat level to attempt to create teams that are even in combat ability.

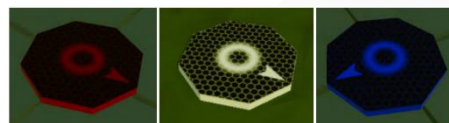




## Team Game Features

### Spawn Pads

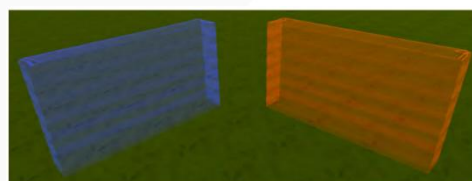
Combat will always begin with players being reset to the start grid, however, during combat players may be reset to spawn pads. Spawn pads are objects that a player can be reset to upon crashing or being knocked out by a player. A player is reset to a random point either on the start grid or at one of the spawn points placed in the track. The arrow on the spawn pad texture indicates the direction that players will be facing when they reset to the pad. There are two types of spawn pad: neutral and team. Anyone can be reset to a neutral spawn pad regardless of game mode. In free for all game modes anyone can be reset to a team spawn pad. However, in team game modes players can only be reset to team spawn pads that are the same colour as their team colour. The blue and red team objects on a track will change to match the colours of the two teams. All blue objects will change to match the colour of one team and all red objects will change to match the colour of the other team.



Team (left and right) and neutral (centre) spawn pads

### Barriers

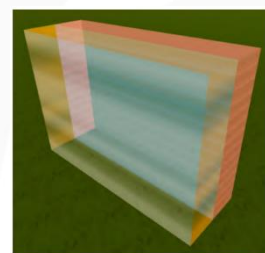
Some combat tracks will utilize barriers. There are two types of barrier: team and track. Team barriers or force fields are red and blue when you first load a track along with the team spawn pads and the other coloured team objects. Team barriers will change colour to match one of the team colours. These barriers cannot be passed by a player belonging to the opposing team, however, a player the same colour as the barrier can freely pass through. Players that come into contact with a barrier belonging to the opposing team will crash and be reset. Ice, pyro, volt and homing (???) shot will not pass through the barrier. Flag carriers cannot pass through the barrier with the flag and attempting to do so will result in the flag being reset to its home position.



Team Barriers

### Track Barrier

The track barrier is a neutral object that track creators will place around a track in order to set the boundary of play. The barriers prevent players from taking game objectives outside of the intended area of play and using underhanded tactics to win. The barrier is split into two sections: the primary barrier or warning zone and the secondary barrier or reset zone. Within the track editor the warning zone is the orange and white box and the reset zone is the red and blue forcefield. The warning zone cannot be seen in game but players will know they have entered the warning zone as it will reveal the reset zone. Players are able to fly within the warning zone, however, carrying a flag in the warning zone will result in the flag being reset to its home position after 3 seconds. This prevents players trying to skirt around the outside of the track boundary carrying a flag. The reset zone works similarly to the team barrier. Players that attempt to fly through the reset zone will crash and be reset to a spawn position. If a player is carrying a flag and hits the reset zone the flag will be reset to its home position. "Unauthorised" can be heard through game announcements when a flag is reset with the track barrier.



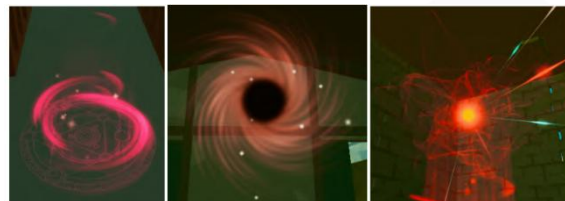
Track Barrier Object



**Flag, Goal, and Flag Marker/Holder**

Capture the flag requires the use of the three flag objects: the flag, the goal and the flag marker/holder. Upon loading into a combat multiplayer lobby the objects will be red or blue but similarly to the other team objects will change colour to one of the team colours on a game start.

The flag holder is not required in order to create a capture the flag track or to start a capture the flag game, however, it plays an important role. The flag holder when placed under the flag in a track will indicate the flag's home position. The location of the flags home position is crucial game knowledge and including a flag holder will make a track user friendly.



Flag Holder, Goal and Flag

**Colored Objects/Team Sides**

Coloured objects that are not part of game modes can be found in the combat section of the track editor including: team banners, neon lines, arrows. These can be used to decorate opposing sides of a track to clearly indicate to players which side of the track is for each team. These objects will change colour to match one of the teams.



Coloured objects being used to clearly mark a team side



## Keyboard Shortcuts

Almost all of these key commands are allowed. The ones highlighted are most likely to be used.

- Likely to be used
- Anything not highlighted is likely not needed for CCTF or optional

Key	Action
Esc	Exit to the main menu
F	Switch between FPV and Pilot views
B	Recharge battery (Doesn't work for CCTF)
1, 2, and 3	Select the bank flight modes (1 - Angle, 2 - Horizon, 3 - Rate)
Pg Up   Pg Down or -   =	Adjust the FPV Camera angle up or down
Home or +	Reset camera angle back to 0 degrees
R	Reset the model position to the last gate passed or the race start position. (Also resets the drone in the event it gets stuck on the map. This will only work if your drone is on the ground i.e. not flying)
End or \	Capture a screenshot and save to the "MyDocuments" Folder
I	Toggle trails on   off. (Doesn't work for CCTF)
H	Toggle crosshair on   off
Shift + H	Change crosshair (If crosshair is visible)
C	Show or hide chat
Spacebar or X	Fire Weapon
S or P	Enter spectator view and cycle through spectator cameras (Not allowed for racers)
Insert   Delete	Lower   Raise field of view in FPV mode
0 (Zero)	Show   Hide user interface
V	Reset field of view in FPV mode
A	Start   Abort a race
M	Visualize controller inputs
I (The letter i)	Toggle gate indicators on   off (at race start) (Not needed in CCTF)
Q	Toggle between normal and minimal flight displays
D	Downgrade quality one level and turn off auto quality for this scene
E	Upgrade quality one level and turn off auto quality for this scene
L	Set custom reset point at current position (Not needed in CCTF)
F12	Show   hide FPS monitor
Shift P	Open the "players in session" panel
J	Open/Close Leaderboard times panel (not needed as it pulls up Track Leaderboard, not Race Leaderboard)
Shift L	Set line of sight camera pointed at current position (Must be in FPV)
W	Lock / Unlock being able to fly or move
F4	Join any players waiting to enter the multiplayer session
F2	Display your own flight path for the last flown race in this session (Not needed in CCTF)