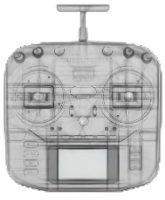
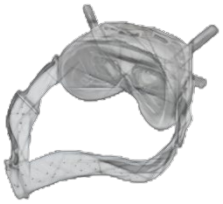
MasterReal

FPV Simulation Training System

User Manual

V1.0





Contents

1 Objectives

This document serves as the User Manual for the MasterReal FPV Simulation Training System. The purpose of this manual is to assist users in better understanding and utilizing the software, thereby enhancing user familiarity and proficiency. It provides comprehensive guidance on system operation and addresses key considerations for optimal software utilization.

2 System Overview

2.1 System User Groups

Primary users of this system include R&D testing personnel, on-site trial personnel, technical support staff, and end users.

2.2 Features

The system primarily includes the following modules: **Basic** training, **Solo Mission training**, **Team** training, **Real** training, **Drone**, and **Settings**.

- **Basic**: Tutorial, Beginner, Advanced
- **Solo Mission**: Military Airbase, Command Base, Radar Base, City Ruins, Beach Head, Desert Town
- **Team**: Create Room, Join Room
- **Drone**: Drone and Ammo Selection
- **Settings**: General, Weather, Controller, Control Feel, Display

3 Operating Environment

3.1 Server-Side

Operating System: Windows 10 or above

Hardware Requirements

- CPU: Frequency of 4.0 GHz or higher
- Graphics Card: Minimum RTX 1660
- RAM: 16GB or larger
- Hard Drive: 500GB or larger

4 Instruction for Use

The MasterReal FPV Simulation Training System includes the following modules: **Basic** training, **Solo Mission training**, **Team** training, **Real** scene training, **Drone**, and **Settings**.

Basic: Includes beginner and advanced mission training.

Solo Mission: Covers six scenario-based exercises— Military Airbase, Command Base, Radar Base, City Ruins, Beach Head, and Desert Town.

Team: Allows users to create or join a training room.

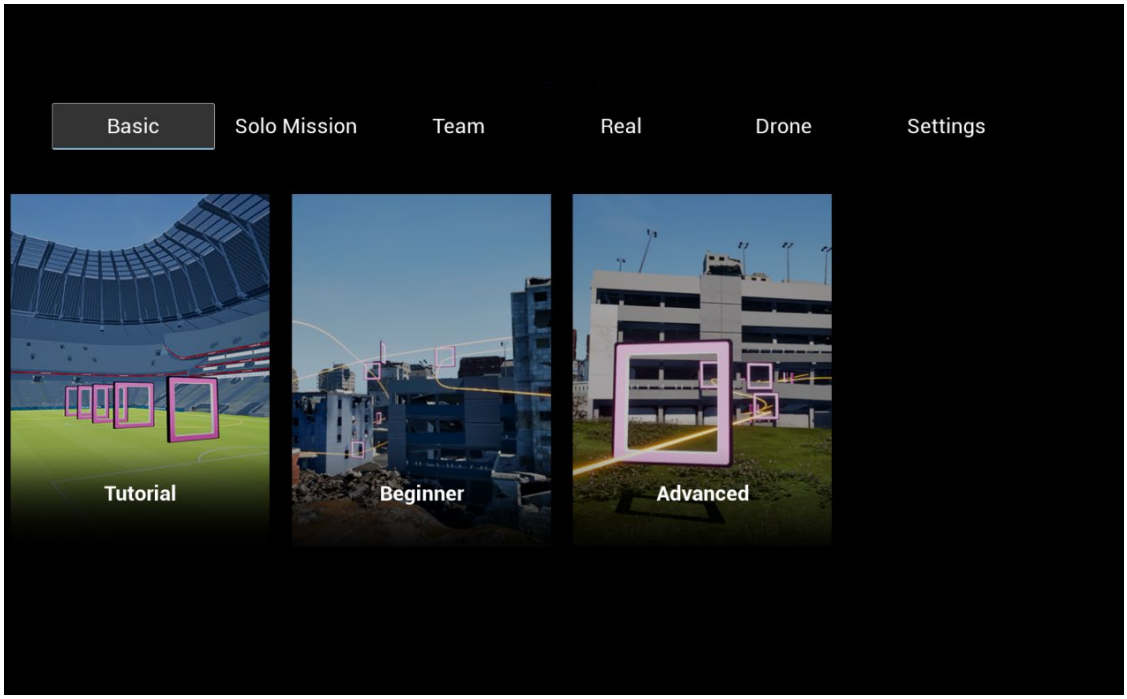
Drone: Offers drone and ammo selection, supporting training with different drone models.

Settings: Includes General settings, Weather, Controller configuration, Control Feel adjustment, and Display settings, enabling customization of language, controller mode, and environmental conditions.

4.1 Homepage

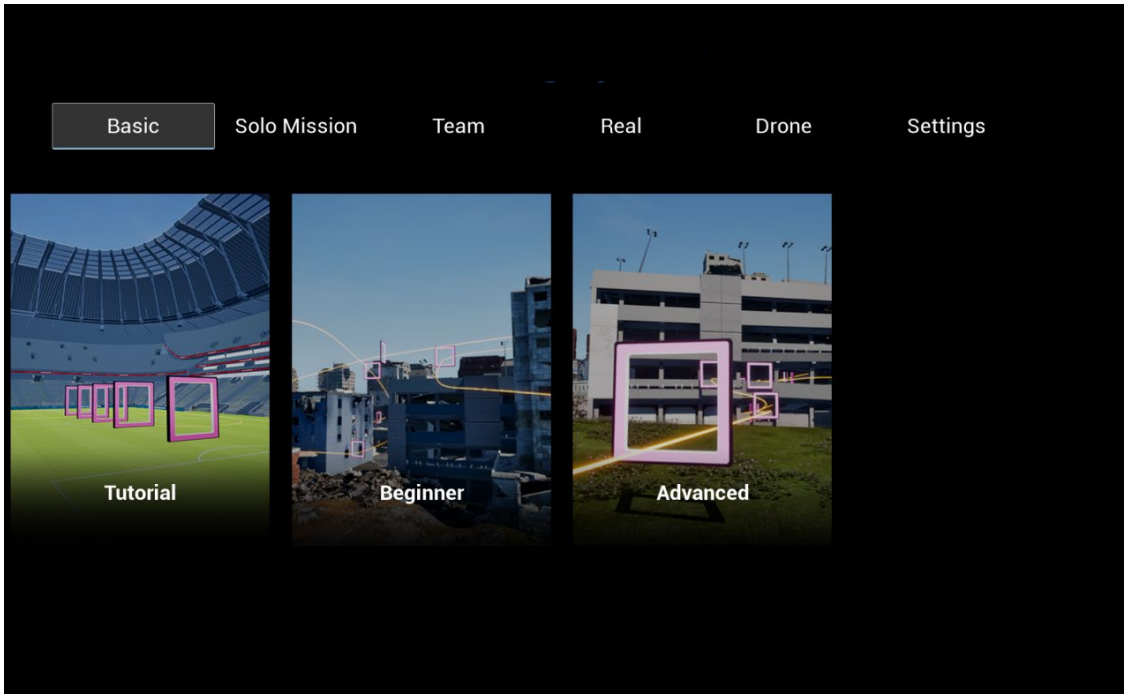
Upon entering the main interface, the system homepage is organized

into six functional modules: **Basic** training, **Solo Mission training**, **Team** training, **Real** scene training, **Drone**, and **Settings**. You can select a module by clicking on the corresponding section with the mouse. To exit the software, click the **Exit** button.



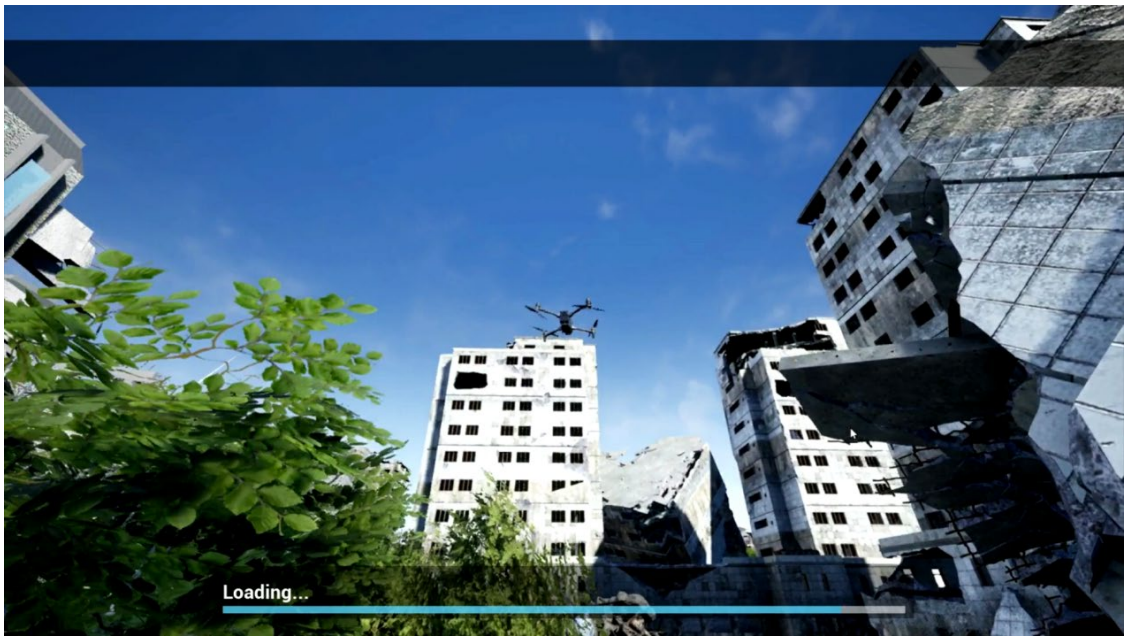
4.2 Basic Training

The Basic training module provides three scenarios for users to choose for drone training: **Tutorial**, **Beginner** and **Advanced**. To enter any scenario, double-click with the left mouse button.



4.2.1 Loading Screen

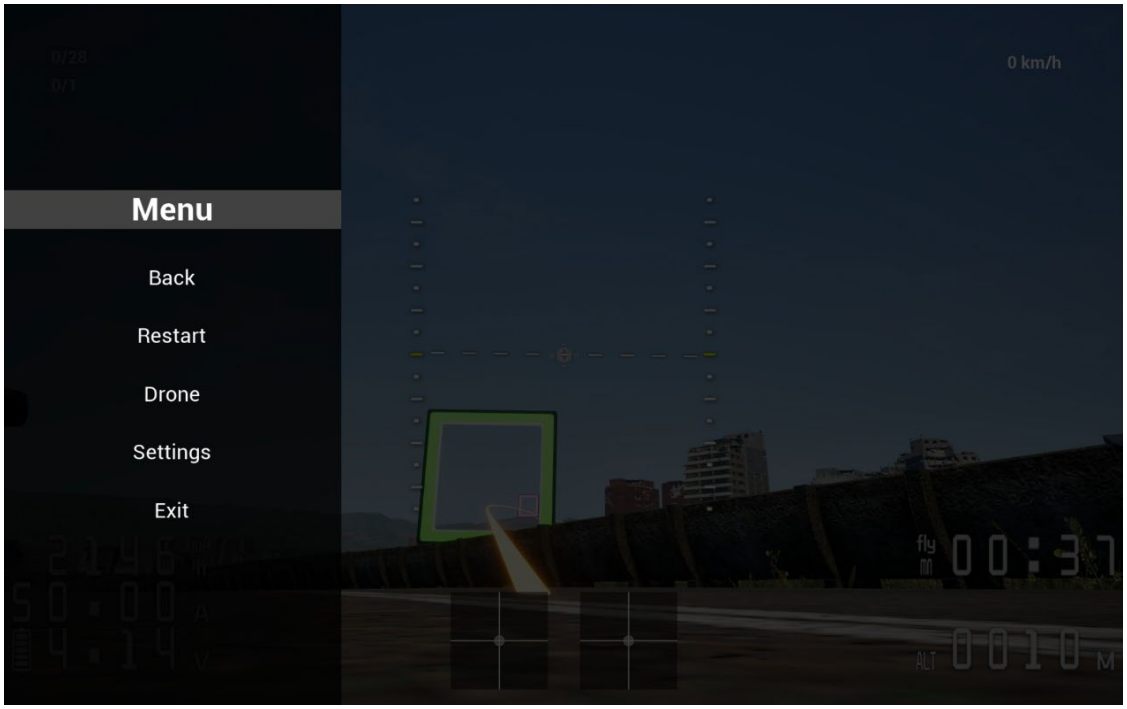
After double-clicking to enter any, Tutorial, Beginner or Advanced, scenario, wait for the scene to load.



4.2.2 Common Keys

Within the scenario:

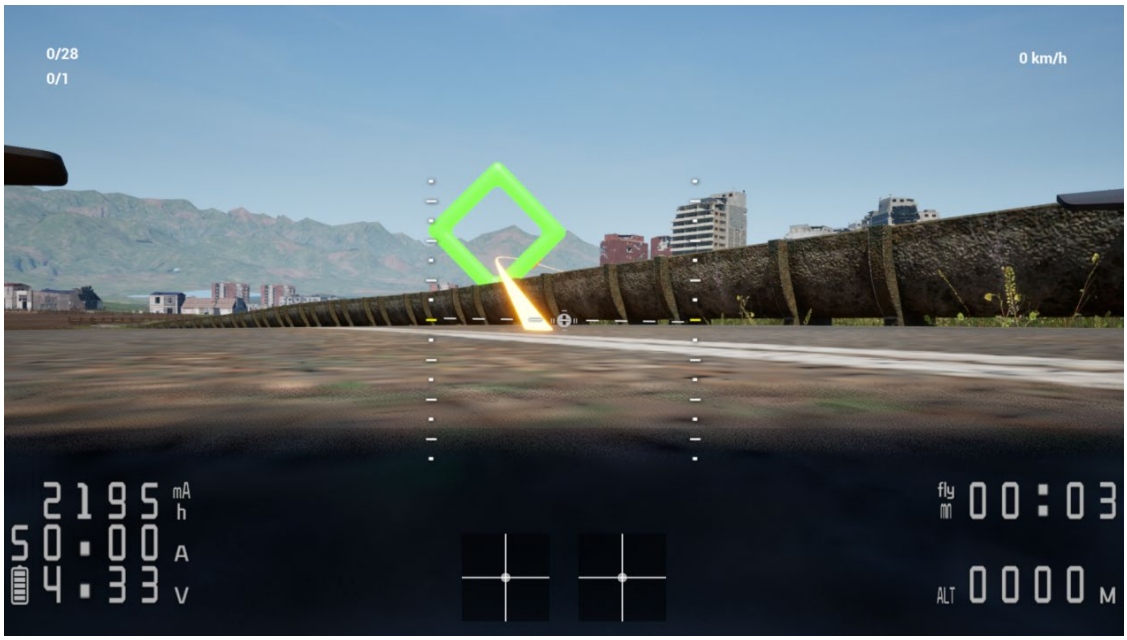
- Press the **Enter** key to switch between follow mode and FPV (First Person View).
- Press the **ESC** key to open the menu.
- Click **Back** to go back to the scenario and continue flying.
- Click **Restart** to re-enter the current scenario.
- Click **Drone** to select the drone model and ammunition. In Basic Training, only FPV drones are available for selection.
- Click **Settings** to perform operations like switching weather and controller modes.
- Click **Exit** to quit the current training scenario.



4.2.3 Beginner

With the default FPV Drone A, unlock the drone by moving the **Throttle** stick from top to bottom. During flight, navigate through the green diamond-shaped indicator gates. Only after passing through the current green gate will the next one turn green; otherwise, it remains red. The top left corner of the scene interface shows the number of gates, and the

top right corner displays speed. After passing through all gates, the system automatically enters the results screen, indicating training completion.

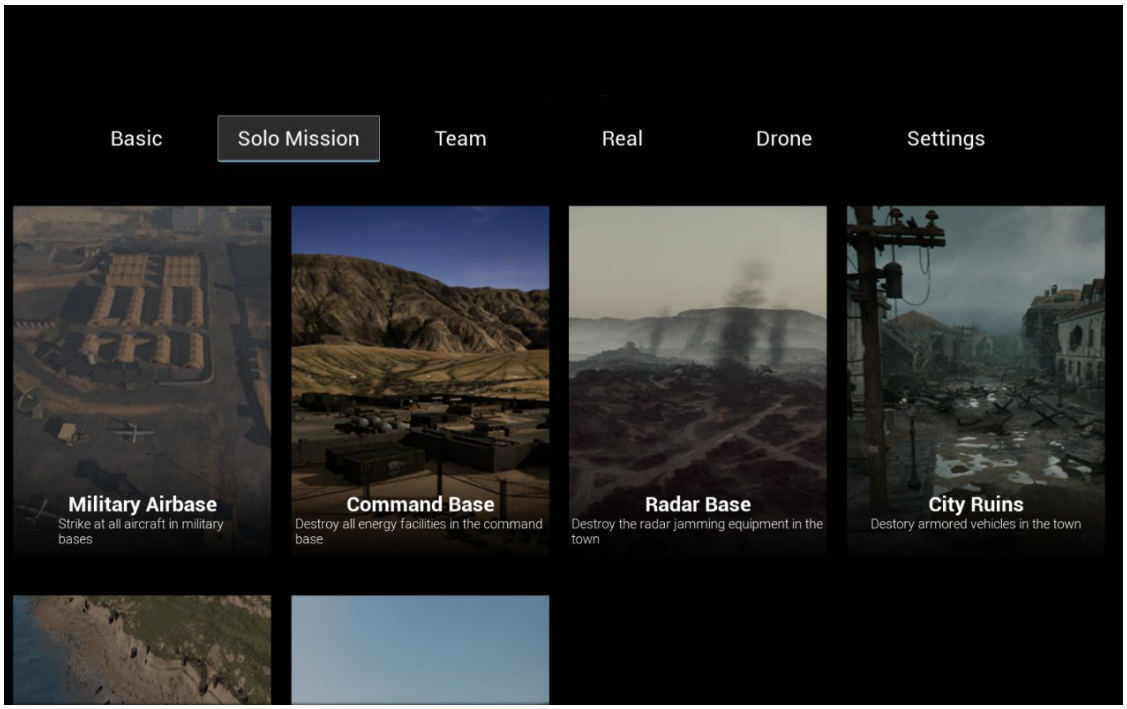


4.2.4 Advanced

With the default FPV Drone A, unlock the drone by moving the throttle stick from top to bottom. During flight, navigate through the green diamond-shaped indicator gates. Only after passing through the current green gate will the next one turn green; otherwise, it remains red. The top left corner of the scene interface shows the number of gates, and the top right corner displays speed. After passing through all gates, the system automatically enters the results screen, indicating training completion.

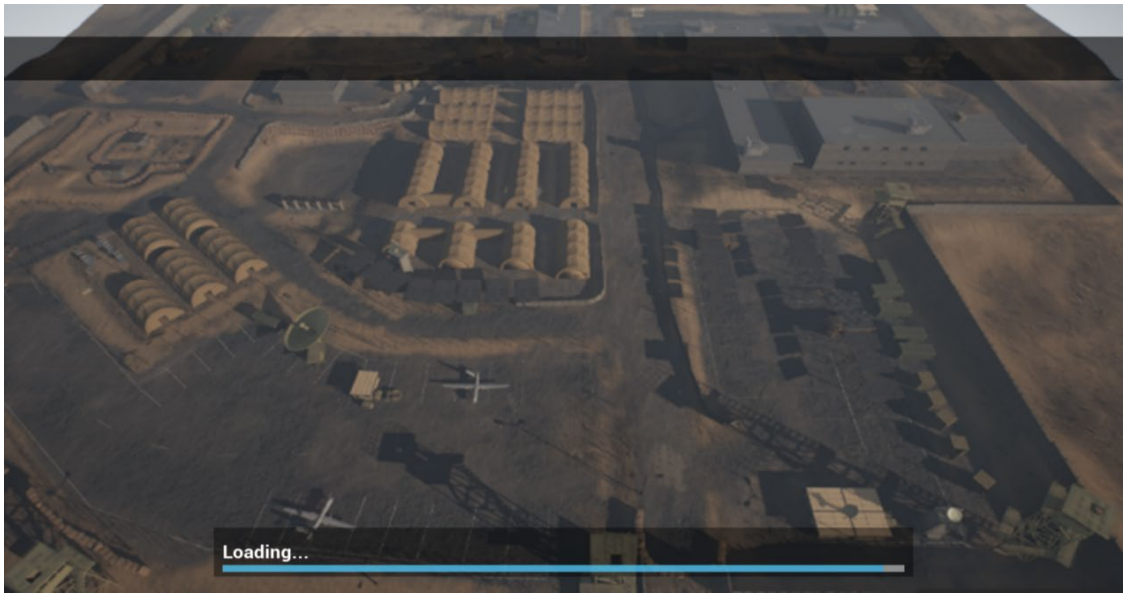
4.3 Solo Mission Training

Select **Solo Mission** and click to enter the list. Solo Mission training includes six scenarios: Military Airbase, Command Base, Radar Base, City Ruins, Beach Head, and Desert Town. Operate the drone in different scenarios to complete various tasks. To enter any scenario, double-click with the left mouse button.



4.3.1 Loading Screen

After double-clicking to enter any Solo Mission training scenario, wait for the scene to load.



4.3.2 Target Setup

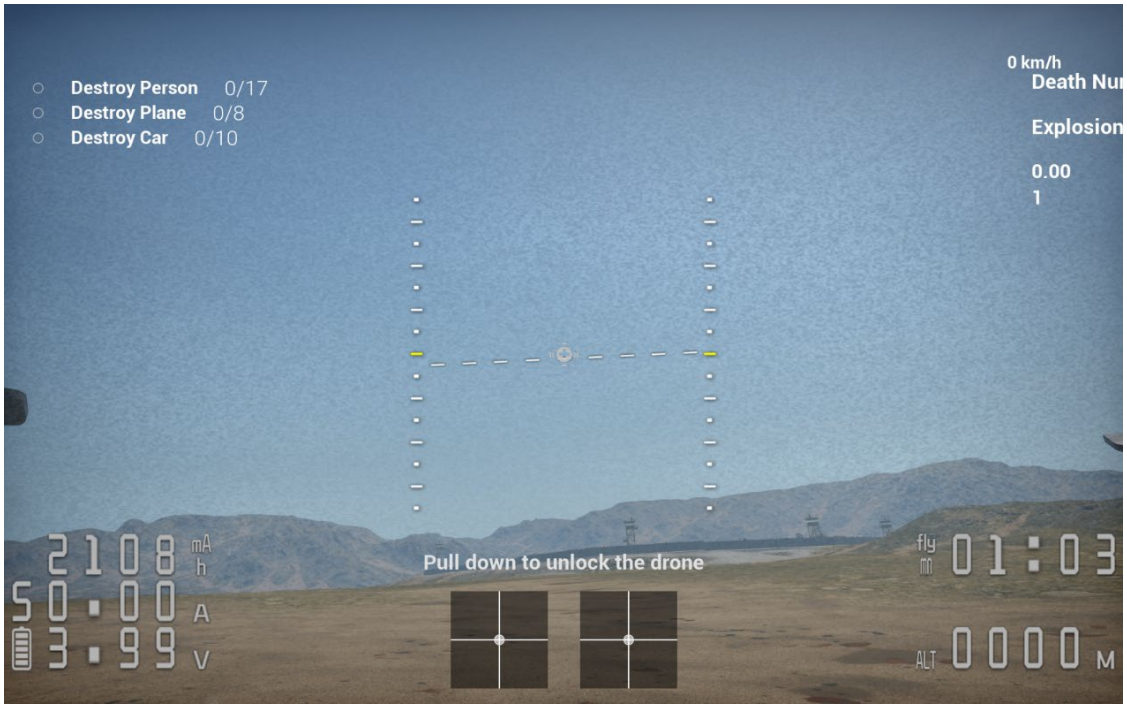
Using the Military Base as an example, you can set the number of targets.

4.3.3 Keyboard Keys

You can find the keyboard function display by scrolling down in the Controller settings within the Settings menu. Key functions support customization.

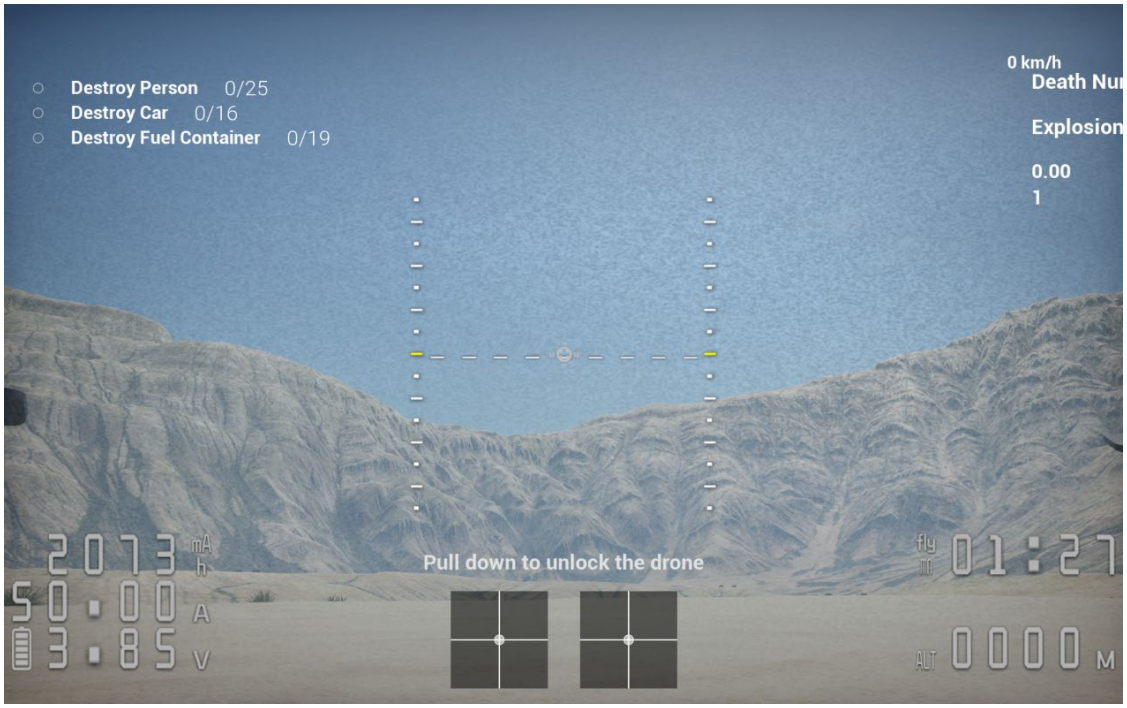
4.3.4 Military Airbase

After entering the Military Airbase scenario, complete the mission by striking the targets. Click on the Settings menu to select the drone model. The targets to be eliminated are shown in the top left corner of the interface. If using Mavic to drop grenades, it is only effective against person. If using FPV Drone A carrying mortar shells, it can be used to bomb armored vehicles and UAVs, and can also cause damage to person. Note that within the scenario, enemy combatants and vehicles will counterattack when approached.



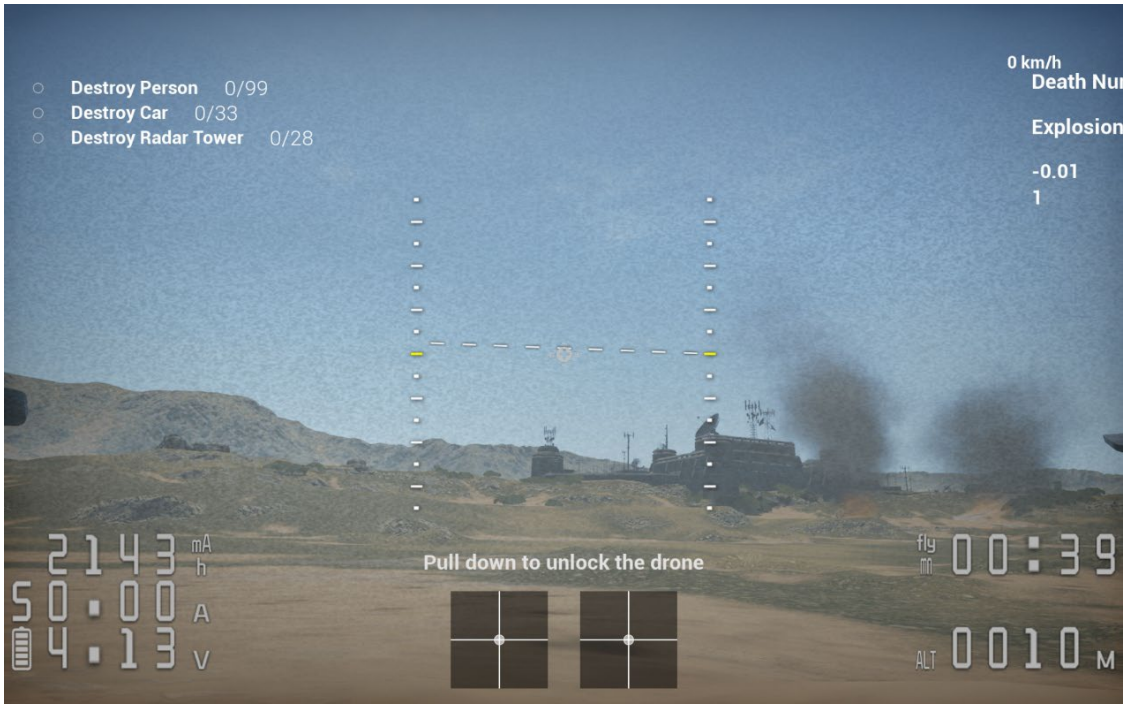
4.3.5 Command Base

After entering the Command Base scenario, complete the mission by striking the targets. Click on the Settings menu to select the drone model. The targets to be eliminated are shown in the top left corner of the interface. If using Mavic to drop grenades, it is only effective against person. If using FPV Drone A carrying mortar shells, it can be used to bomb armored vehicles and UAVs, and can also cause damage to person. Note that within the scenario, enemy combatants and vehicles will counterattack when approached.



4.3.6 Radar Base

After entering the Radar Base scenario, complete the mission by striking the targets. Click on the Settings menu to select the drone model. The targets to be eliminated are shown in the top left corner of the interface. If using Mavic to drop grenades, it is only effective against person. If using FPV Drone A carrying mortar shells, it can be used to bomb armored vehicles and UAVs, and can also cause damage to person. Note that within the scenario, enemy combatants and vehicles will counterattack when approached.



4.3.7 City Ruins

After entering the City Ruins scenario, complete the mission by striking the targets. Click on the Settings menu to select the drone model. The targets to be eliminated are shown in the top left corner of the interface. If using Mavic to drop grenades, it is only effective against person. If using FPV Drone A carrying mortar shells, it can be used to bomb armored vehicles and UAVs, and can also cause damage to person. Note that within the scenario, enemy combatants and vehicles will counterattack when approached.

4.3.8 Beach Head

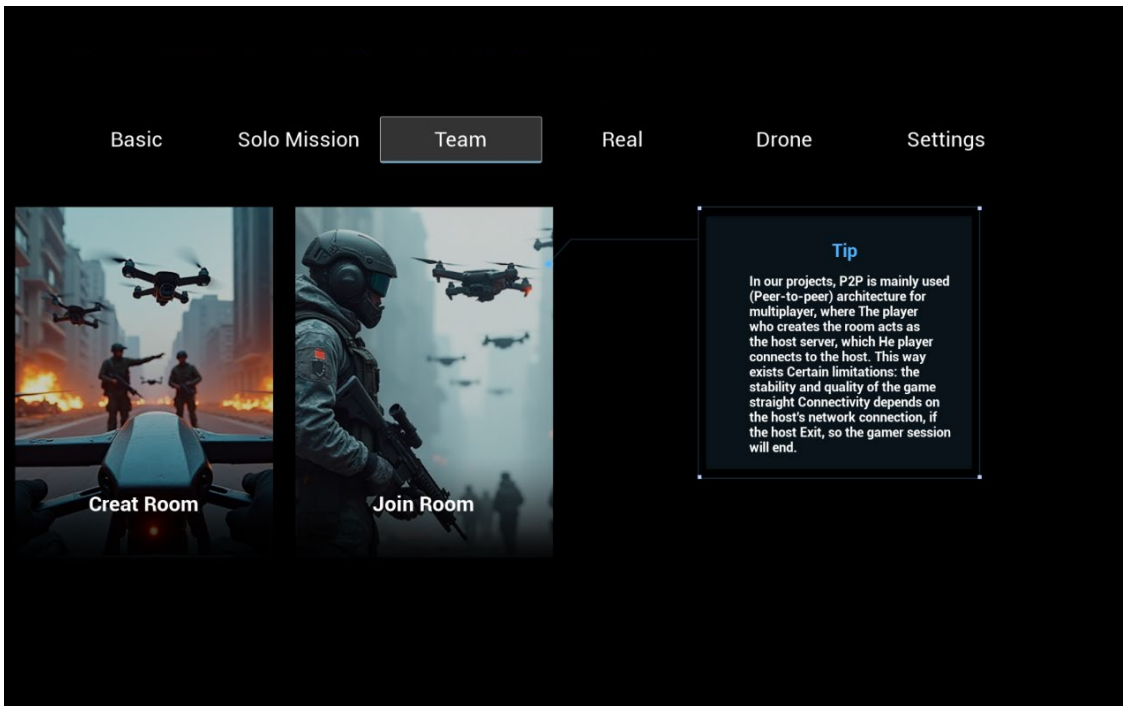
After entering the Beach Head scenario, complete the mission by striking the targets. Click on the Settings menu to select the drone model. The targets to be eliminated are shown in the top left corner of the interface. If using Mavic to drop grenades, it is only effective against person. If using FPV Drone A carrying mortar shells, it can be used to bomb armored vehicles and UAVs, and can also cause damage to person. Note that within the scenario, enemy combatants and vehicles will counterattack when approached.

4.3.9 Desert Town

After entering the Desert Town scenario, complete the mission "Destroy All Aircraft at the Military Base". Click on the Settings menu to select the drone model. The targets to be eliminated are shown in the top left corner of the interface. If using Mavic to drop grenades, it is only effective against person. If using FPV Drone A carrying mortar shells, it can be used to bomb armored vehicles and UAVs, and can also cause damage to person. Note that within the scenario, enemy combatants and vehicles will counterattack when approached.

4.4 Team Training

Select Team and click to enter the list which is divided into two parts: Create Room and Join Room.



4.4.1 Check Computer Environment

Whether you choose to create or join a room, you need to check your computer environment. Make sure the loopback adapter disabled and all computers on the same Local Area Network (LAN).

4.4.1.1 Disable the Loopback Adapter

On your local computer, open Device Manager. Expand the Network Adapters category. If you see the Microsoft KM-TEST Loopback Adapter, right-click on it and select Disable Device.

4.4.1.2 Check LAN

Following these steps to determine whether different computers are on the same LAN.

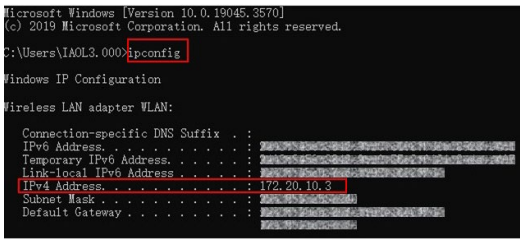
a) Open the Command Prompt window on your computer: Press the keyboard shortcut **Win** + **R**, type **cmd**, and press **Enter**.

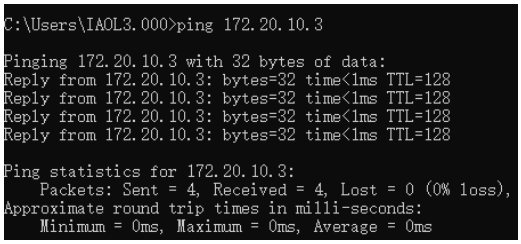
b) Check the local IP address: In the Command Prompt window, type **ipconfig** and press **Enter**. The LAN IP address of your computer can be found in the results.

c) Test connectivity to the other computer: After obtaining the IP address of the other computer, enter **ping** <**target IP address**> (e.g., ping 192.168.1.20) in the Command Prompt window and press **Enter**.

d) Check the results: If the response shows "Reply from [IP address]" ,

the connection is successful. If errors such as “Request timed out” appear, it indicates that the computers may not be on the same LAN.





4.4.2 Create Room

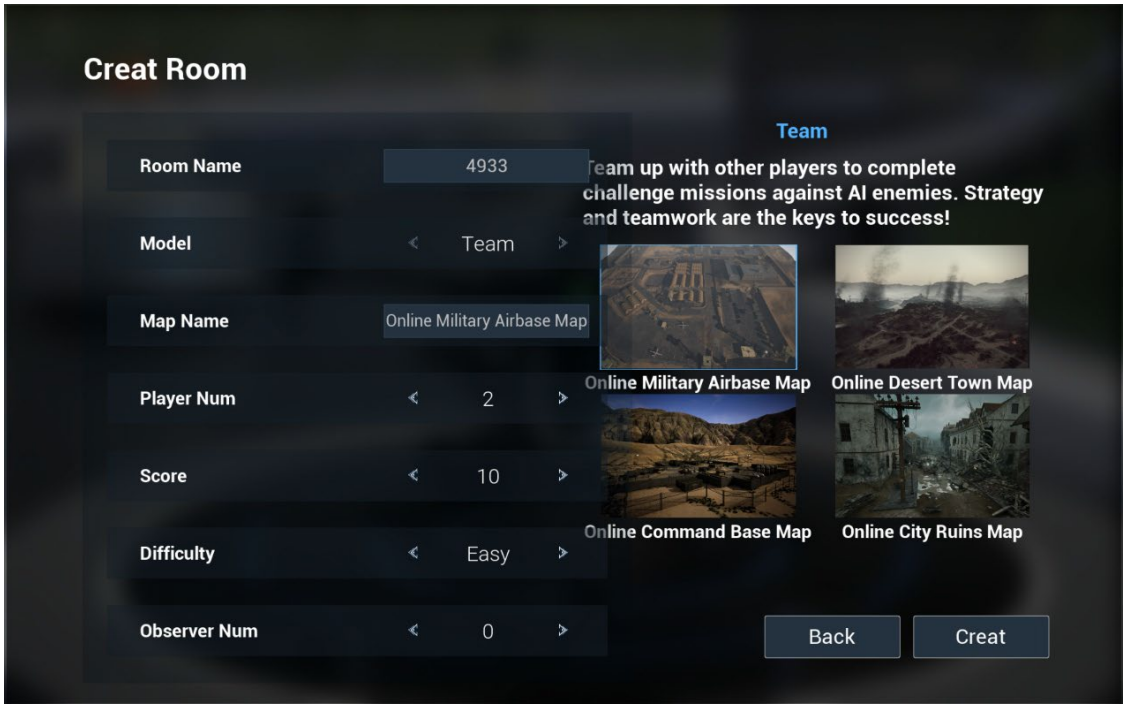
Double-click **Create Room** to enter the interface. This is the host setup screen. After creation is complete, wait for other users to join before starting the mission.

4.4.2.1 Creation Setup

The host can configure: Map Name, Player Number, Score, and Difficulty.

- **Map Name**: Click on one of the four images on the right to select a scene: Military Airbase, Command Base, Desert Town, or City Ruins.
- **Player Number**: Choose from 2/4/6/8/10 users.
- **Score**: Set the required number of eliminations to win a round (e.g., 10/20/30/.../100).
- **Difficulty**: Select from Easy, Normal, or Difficult.

After configuring the settings, click the **Create** button to proceed to the waiting interface for joining players.



4.4.2.2 Room Waiting Interface

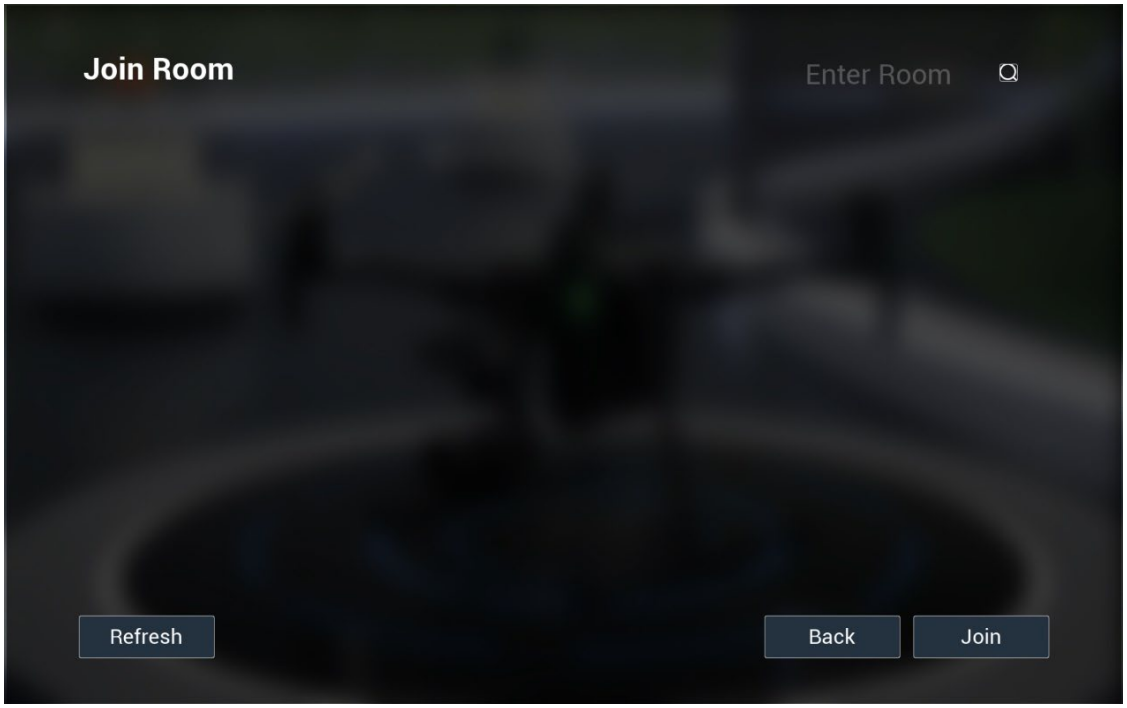
When the host first enters, they appear as Soldier 1. Click **Set Drone** to configure the drone. The chat window is located at the bottom left. Wait for other users to join. The number in the top left corner ("Winnie-4933" in the example) is the room ID for joining; it is randomly generated each time a room is created and cannot be manually edited. The host can click the **Start** button only after other users have joined and set their drone models.

4.4.3 Join Room

Under the Team category, double-click **Join Room**. Enter the interface to join the host's room.

4.4.3.1 Find Room

Users can click **Refresh** in the lower left corner or enter the host's Room ID to search for the room. Select the room and click **Join** in the lower right corner. Wait to enter the host's room interface.

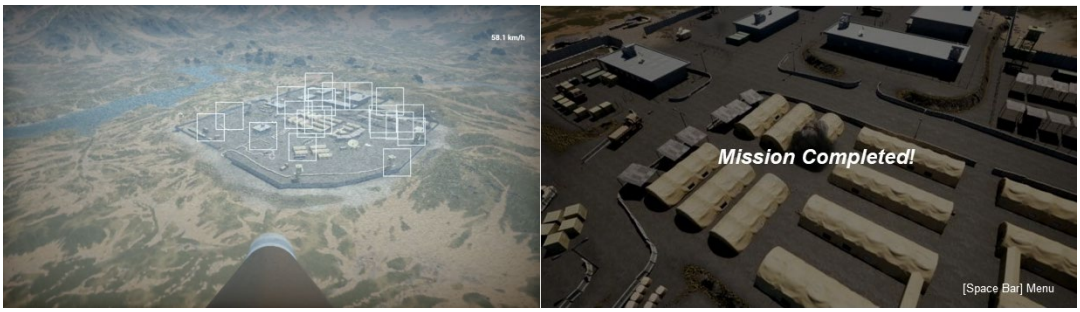


4.4.3.2 Room Preparation

Click **Set Drone**. Once the drone is configured, click **Ready** in the lower right corner and wait for the host to start the session.

4.4.4 Team Strike

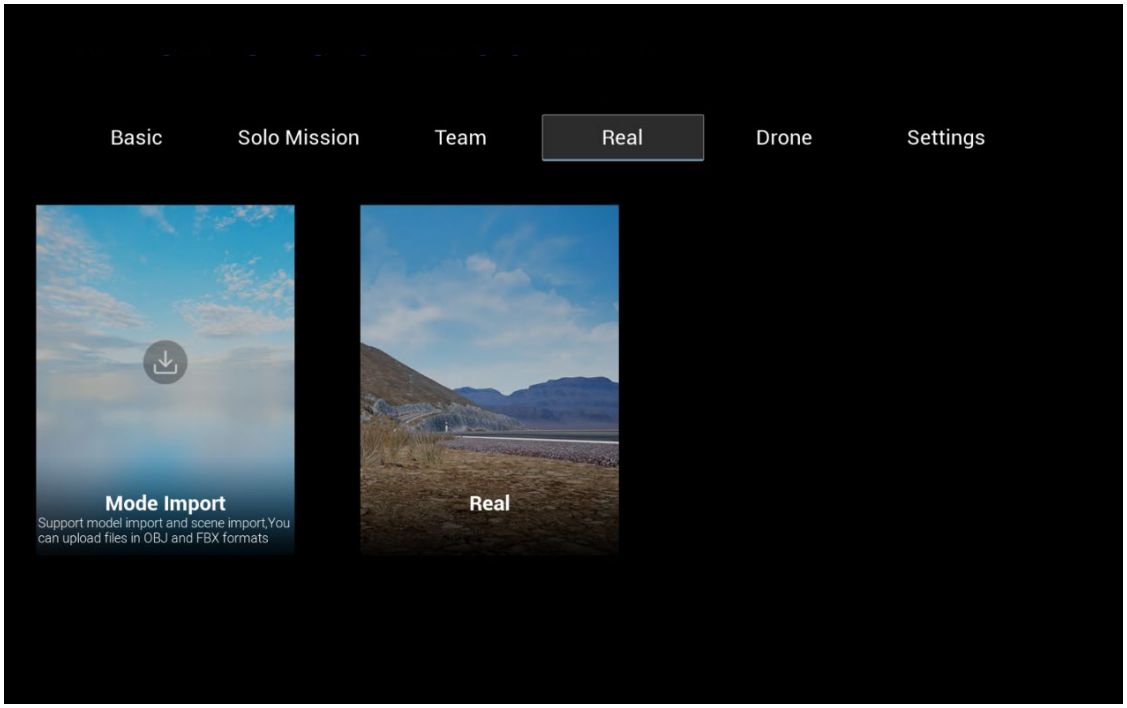
All users in the room must work together to eliminate the set number of targets. After completing the required number of kills, the results screen will appear. Press the **Spacebar** to exit the training session.



4.5 Real Scene Training

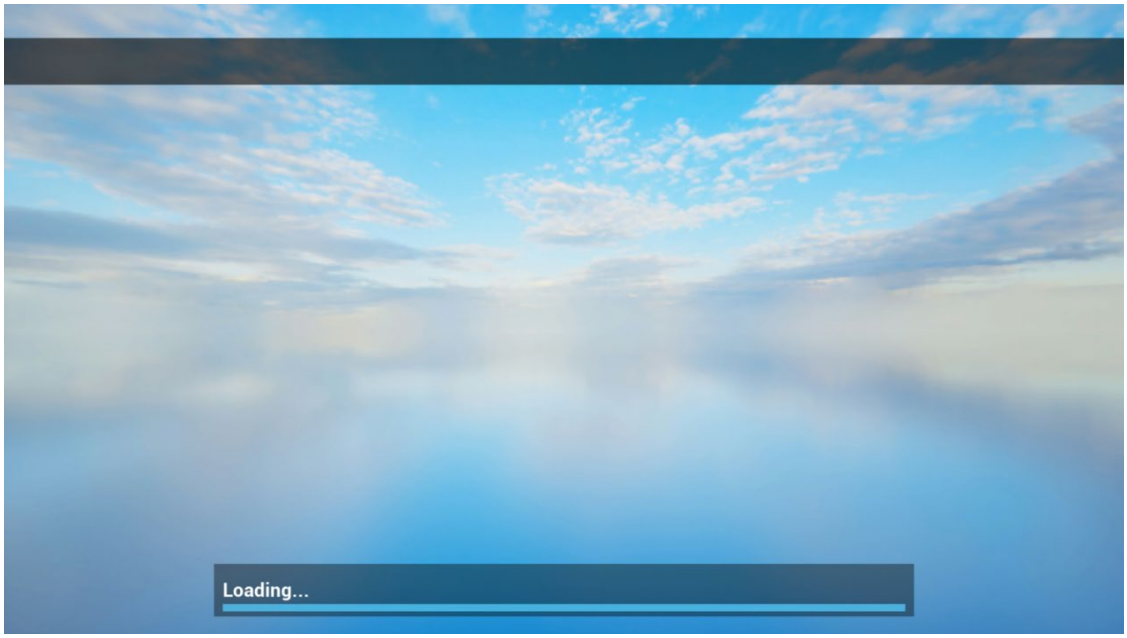
Select **Real** and click to enter the Mode Import. The import of 3D models

in OBJ format created by modeling software such as DJI Terra and ContextCapture (CC) is supported.



4.5.1 Loading Screen

After double-clicking to enter the Mode Import scenario, wait for the scene to load.

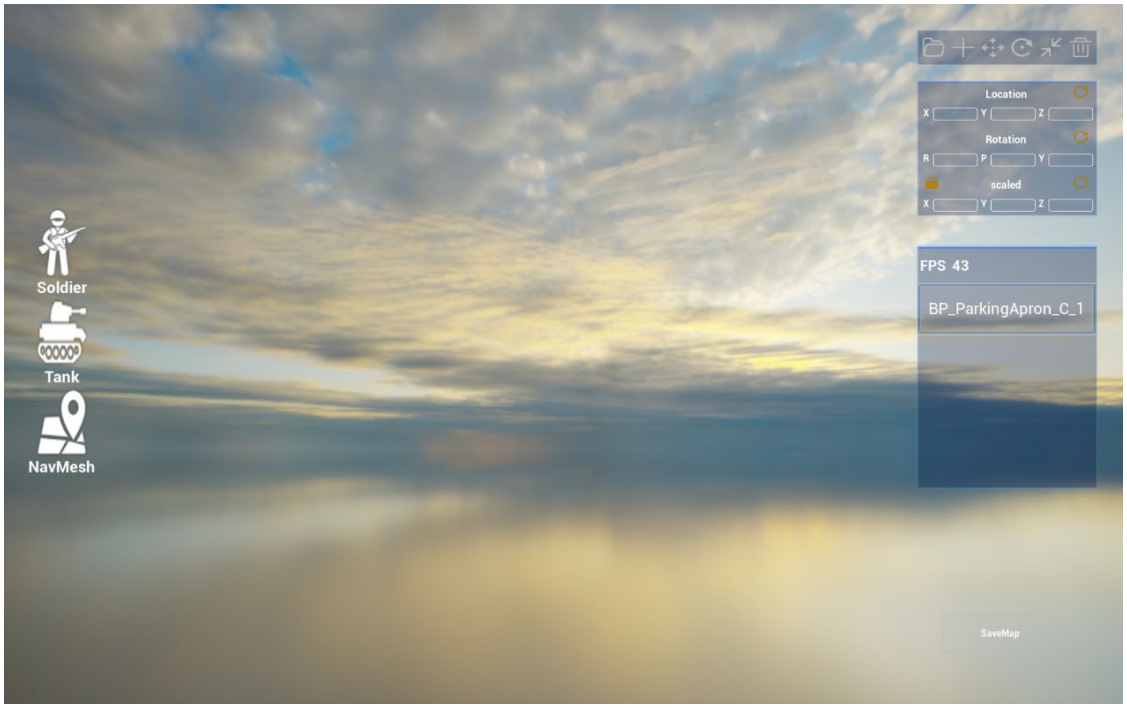


4.5.2 Mode Import

After entering the Mode Import, use the icons in the top right corner:

- for importing an entire folder of model files.
- for importing a single model file.
- for moving the model. Select the model and then this icon, and drag the arrow to adjust its position.
- for rotating the model. Select the model and then this icon, and drag the arrow to change its orientation.
- for scaling the model. Select the model and then this icon, and drag the arrow to resize it.

You can also change the model's position by entering numerical values into the XYZ fields and pressing Enter.



4.5.3 Import Model

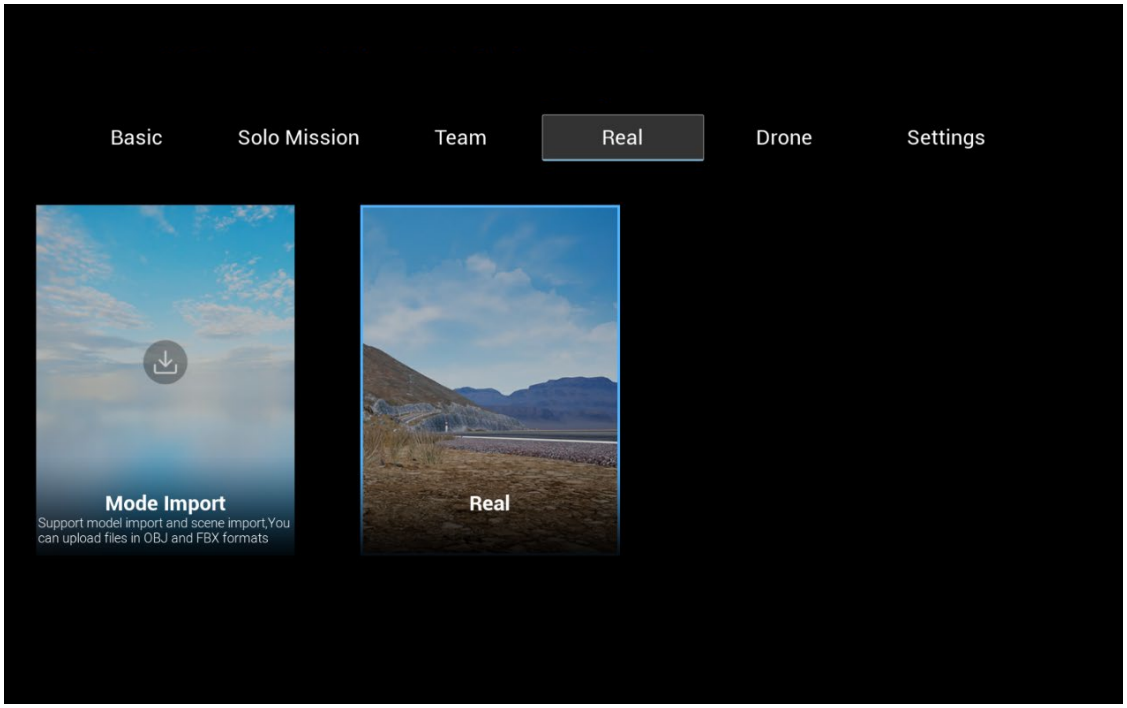
You can select the bulk import option to directly import an entire folder into the scene. Note that the loading process may be slower (a file size

around 400 MB is recommended). If the file or polygon count is too high, the import may fail or cause the software to crash. Please proceed with caution.

Once imported, the scene can be moved, rotated, or scaled. Use the W, A, S, and D keys to navigate the scene, while Q lowers the height and E raises it. After adjusting the position and size, click **SaveMap** in the lower-right corner, enter a name, and save the current scene.

4.5.4 Real Training

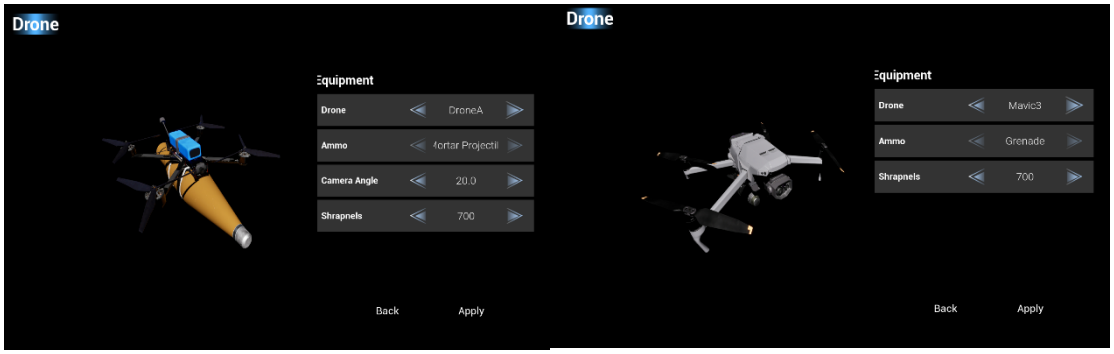
After saving the scene, return to the Mode Import list where the newly saved scene will appear, or click on an existing real-scene training map. Double-click to enter the scene for real scene training. You can also click the delete button in the upper right corner to remove the new scene. Within the new scene, the drone will spawn on a helipad, and you can proceed with flight training.



4.6 Drone

Click on Drone to access the drone & ammo selection list. There are 2 drone types available, each with its carried ammunition.

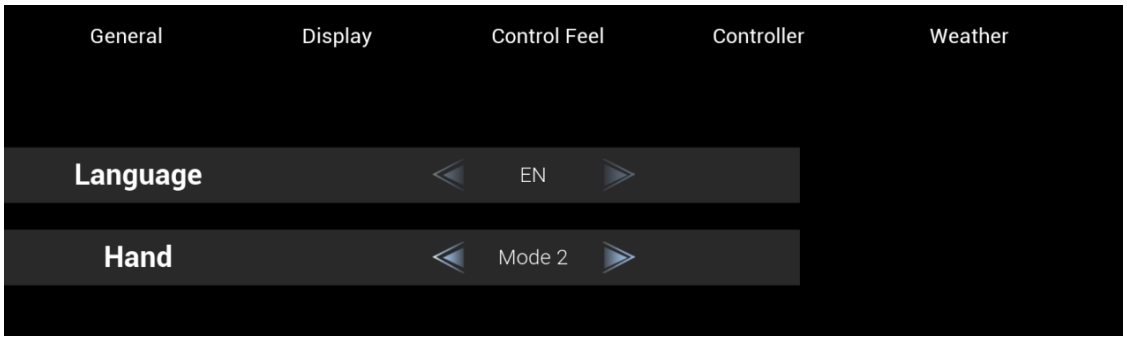
- **Mavic3**: Carries grenades. If grenades are depleted during a scenario, click **Apply** again to replenish the ammo count. Effective only against person.
- **Drone A**: Carries mortar shells. After applying this drone, it flies in FPV (First Person View) mode and allows camera angle adjustment.



Primarily used for destroying armored vehicles and drones.

4.7 Settings

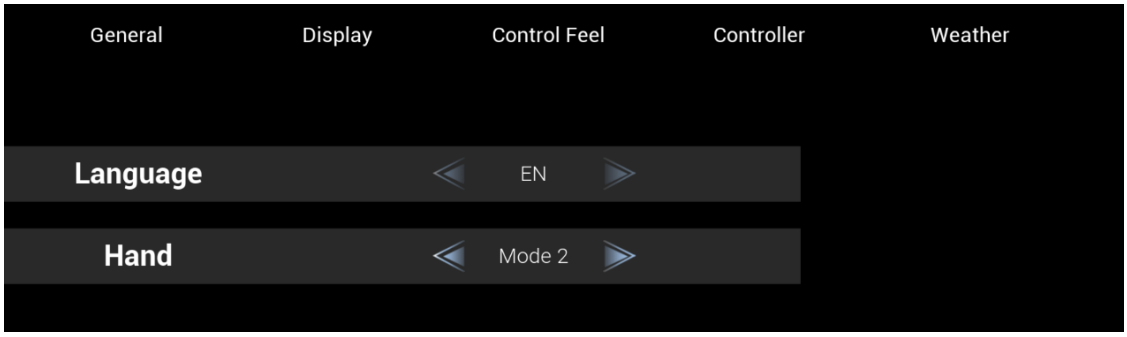
When you click **Settings**, a list will display options for general settings and environment settings.



4.7.1 General

In General settings, you can:

- Switch between Chinese and English languages.
- Set the controller mode (stick mode): Mode 1 (Japanese), Mode 2 (American).

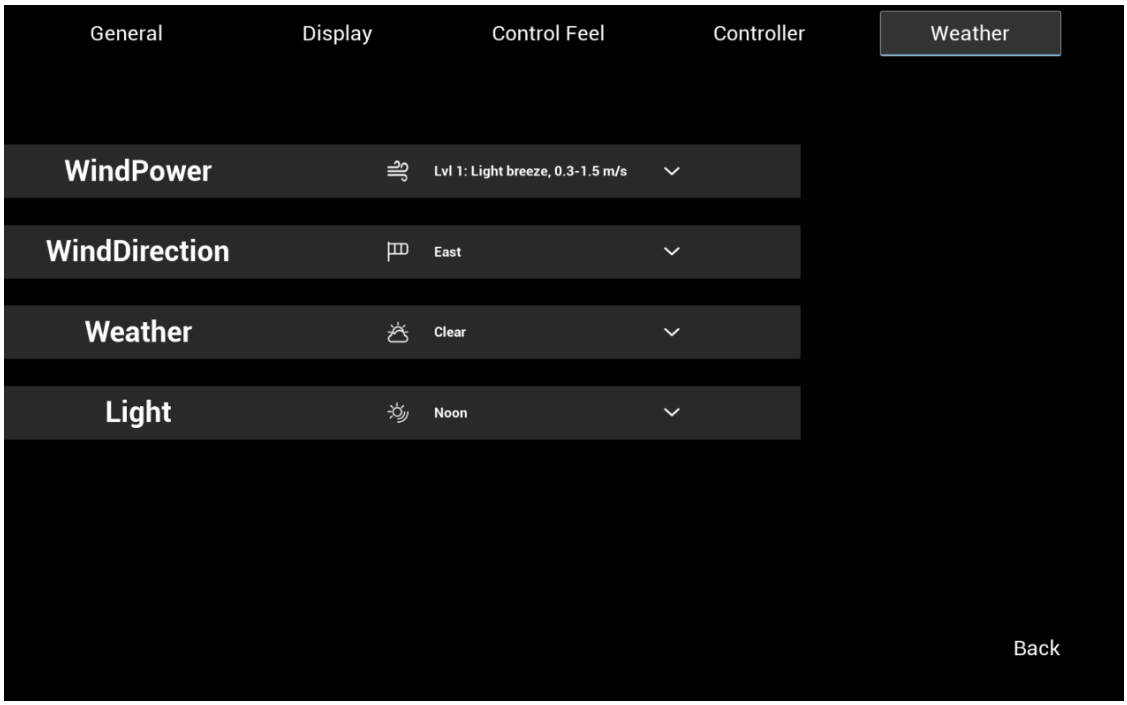


4.7.2 Weather

Click on Weather to configure wind force, wind direction, weather, and lighting conditions.

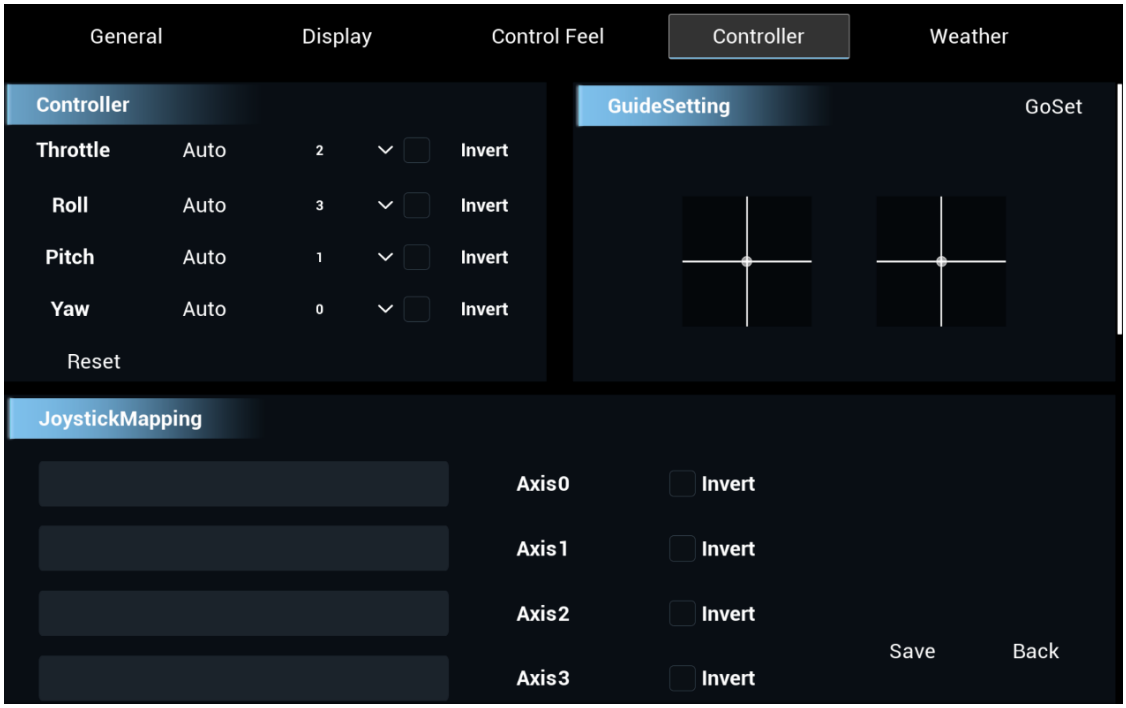
- WindPower: Set levels 1 through 9.
- WindDirection: Set to 8 directions: East, South, West, North, Southeast, Northeast, Southwest, Northwest.

- Weather: Set conditions including Sunny, Cloudy, Light Snow, Heavy Snow, Light Rain, Heavy Rain, Light Fog, Heavy Fog, Light Dust, Heavy Dust.
- Light: Set time of day— Dawn, Noon, Dusk, Midnight.



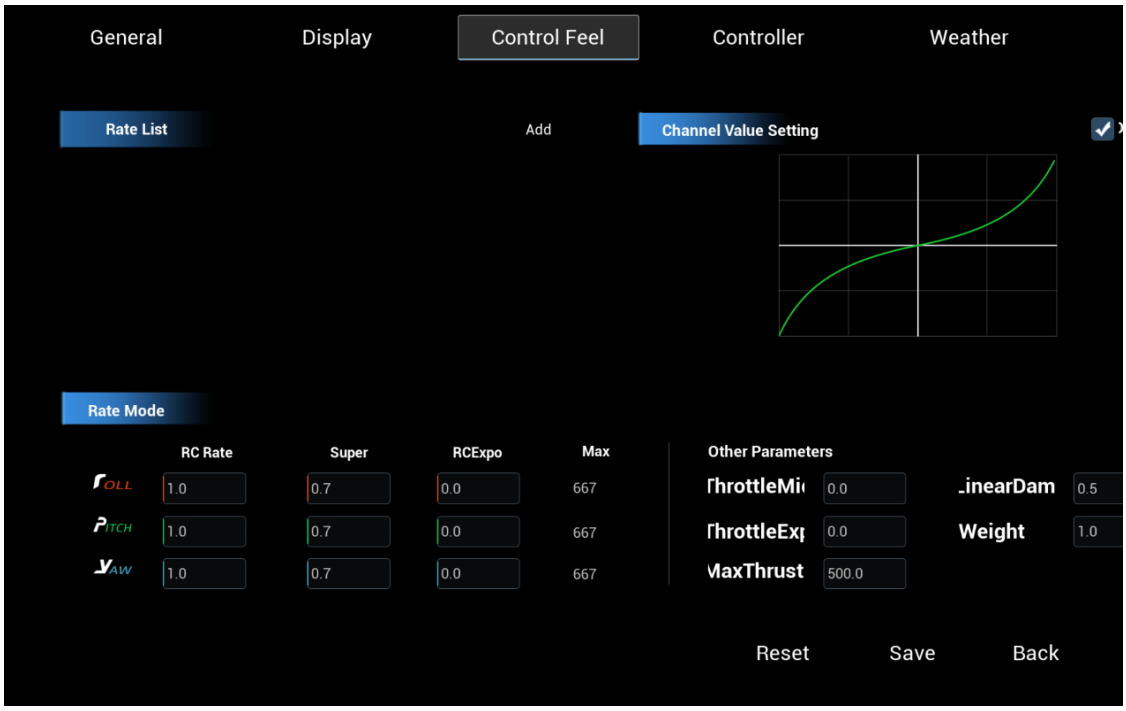
4.7.3 Controller

After connecting the remote controller, first click on **GoSet** to calibrate it. This is to prevent initial state errors with some market controllers (some controllers might not work even after calibration). Follow the calibration instructions and verify the channel values of the control sticks afterwards.



4.7.4 Control Feel

In the Rate List, click **Add** to create a new parameter. Configure the parameter values within the Rate Mode. After configuration, click **Save** and **Apply**. The system defaults to having the **Default Parameters** option in the top right corner checked.



4.7.5 Display

You can toggle the interface display elements and operational features On/Off.