ROPPOR Swarm Drone Virtual Operation Simulator Usage Guide

Chemessen, Inc.

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Please select the hardware and mobile communication network that suits your purpose using the free trial version, which is provided unlimitedly regardless of the duration and number of drones, and be sure to verify its function, durability, stability, and malfunction. In addition, it is necessary to check and comply with the relevant laws and regulations of the country when drones are actually operated.

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Index

1. Product Overview

The ROPPOR Swarm Drone Virtual Operations Simulator (ROPPOR Simulator) is a program designed to create and simulate virtual drones in conjunction with ROPPOR Server, ROPPOR Private, ROPPOR Art, even if actual drones are not ready. The ROPPOR Simulator is designed to communicate data similar to real drones. Therefore, it is possible to check the number of drones that can be operated according to the actual communication status of the flight site. In addition, simulation flight is possible using virtual drones depending on the function of the three ROPPOR products(ROPPOR Server, ROPPOR Private, ROPPOR Art).

The ROPPOR Simulator can be used on any other PC, regardless of operation PC or relay PC, server PC. However, if you use the other 3rd PC, you must set up the same environment as the operation PC. This means that you must receive a VPN Client Key through a VPN Server on a server (ROPPOR Server) or relay (ROPPOR Private/ROPPOR Art) PC to connect to the VPN so that the same network can be configured to communicate each other.

You can set and edit flight paths on the ROPPOR Swarm product (Server, Private), enabling simulated flights similar to actual route flight. You can also upload a formation path files for the drone light show on the ROPPOR Art, enabling simulated drone light show flight. But all simulated flights can be different from actual flights because they only support just path flight for simulation test, NOT about altitude, flight speed, battery, obstacles, and other factors on the real field flight.

You must install JAVA 8 or higher on your PC. In addition, the number of virtual drones that can be simulated is limited by performance, such as the internet environment, memory, and CPU on your PC. For large-scale simulation testing, you can divide PCs and distribute the number of drones each PCs (ex. 1~300, 301~600, 601~900, 901~1000 on each of the four PCs)

※ Simulator-generated virtual drones do not match actual flight and are only available for testing and demonstration purposes.

2. How to use

VPN

The ROPPOR Simulator is a program that generates virtual drones with similar communication loads to the actual ROPPOR three kinds of software, The VPN Client IP assignment associated with the VPN Server on server PC (ROPPOR Server) or relay PC (ROPPOR Private/ROPPOR Art) is mandatory for PCs to install and run simulator.

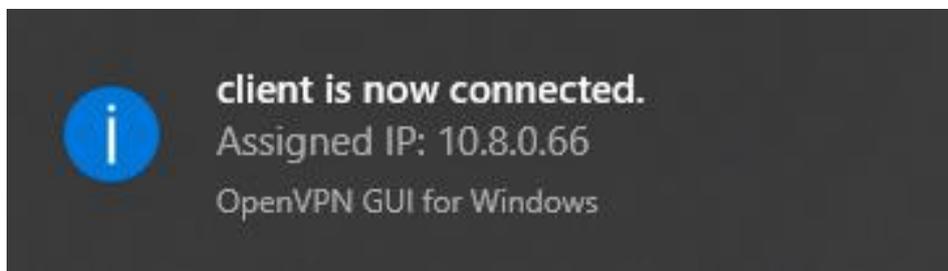Run VPN on the PC where you want to use simulator. And connect to VPN Client and get IP assigned.

Figure 1 VPN Client

※ Refer to the "ROPPOR three kinds of software (Server/Private/Art) Installation Guide" for VPN Server setting and VPN Client installation instructions.

ROPPOR Software (Server/Private/Art).

The ROPPOR Simulator is a program that generates virtual drones in ROPPOR three kinds of software that have already been run. Therefore, you must have ROPPOR software installing and running before generating a virtual drone to use simulator.

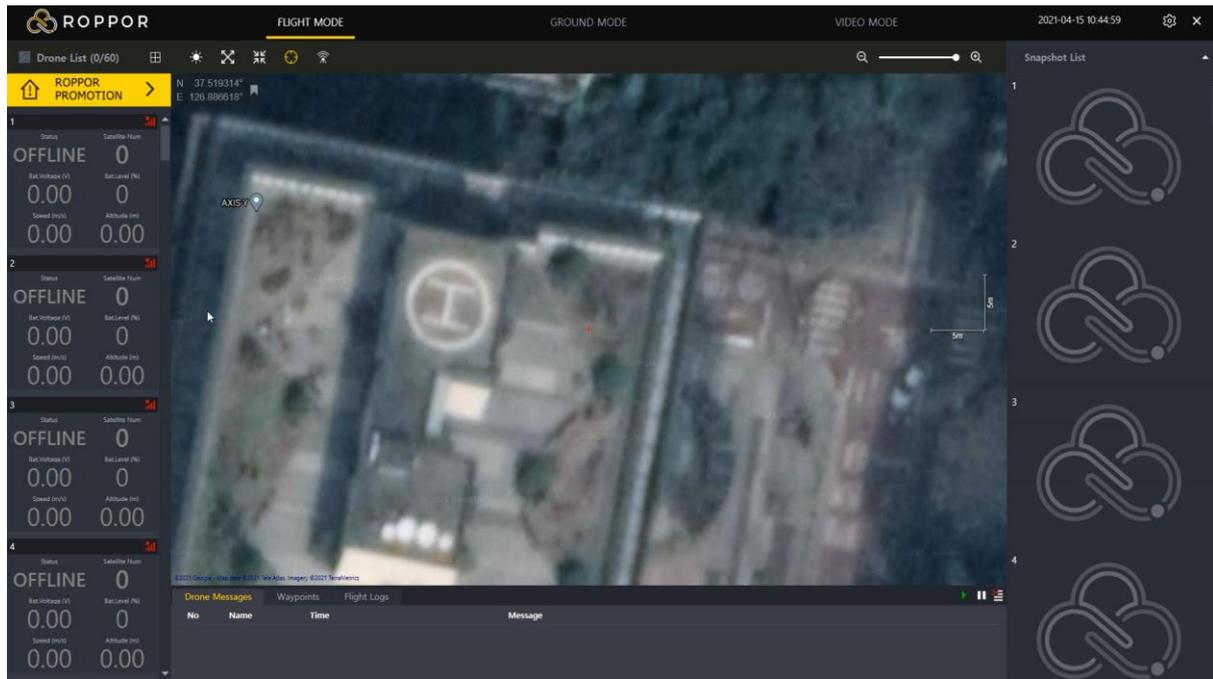Run the ROPPOR software on your operation PC.

Figure 2 ROPPOR Software

※ Refer to the "ROPPOR three kinds of software(Server/Private/Art) Installation Guide" for installation instructions on ROPPOR software.

ROPPOR Simulator

The ROPPOR Simulator asks four questions to generate a virtual drone, depending on your usage and environment. The questions are as follows.

- Please enter the first drone number

  enter the first virtual drone number to be created with the simulator.

- Please enter the number of drones

  enter the total number of virtual drones to be created with the simulator.

- Please enter an IP to connect to

  enter the VPN IP of the PC on which ROPPOR S/W is executed.

- Enter the name of the product you want to access

  enter the type of ROPPOR S/W you executed. (regardless of capital letter, Server/Private/Art)

1) Run the ROPPOR Simulator

Figure 3 ROPPOR Simulator Icon

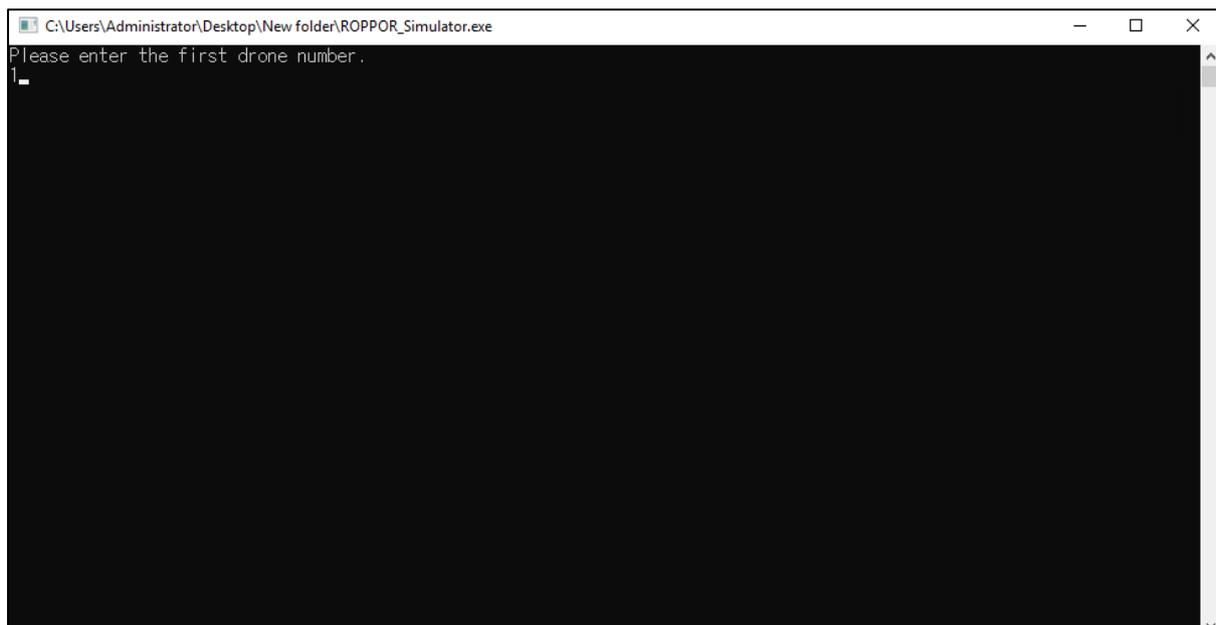2) At first, 'Please enter the first drone number', enter 1.

Figure 4 ROPPOR Simulator Q1

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3) Enter the number of units for the second 'Please enter the number of drones' to use.

(For example, if you want to turn on 6th drone through 30th, enter 6 in the first input and 25 in the second.)
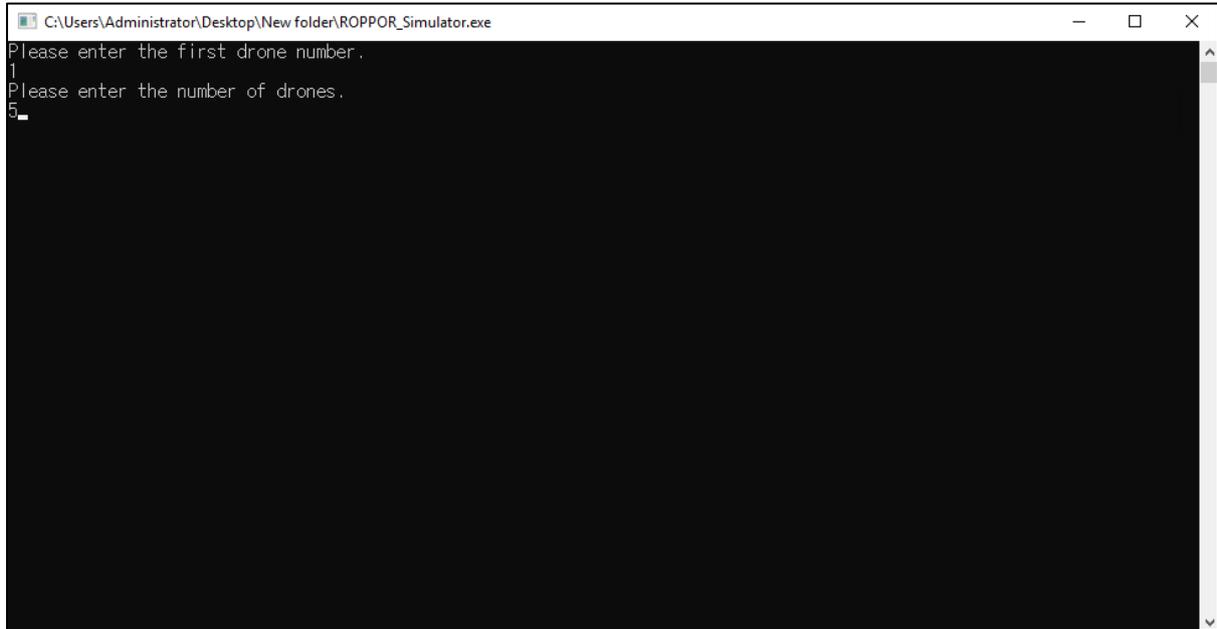

Figure 5 ROPPOR Simulator Q2

3) Thirdly, enter the IP Address of the ROPPOR operating PC in the 'Please enter an IP to connect to' if you execute the ROPPOR Private/Art. In case ROPPOR Server, enter the IP Address of the ROPPOR Server PC.
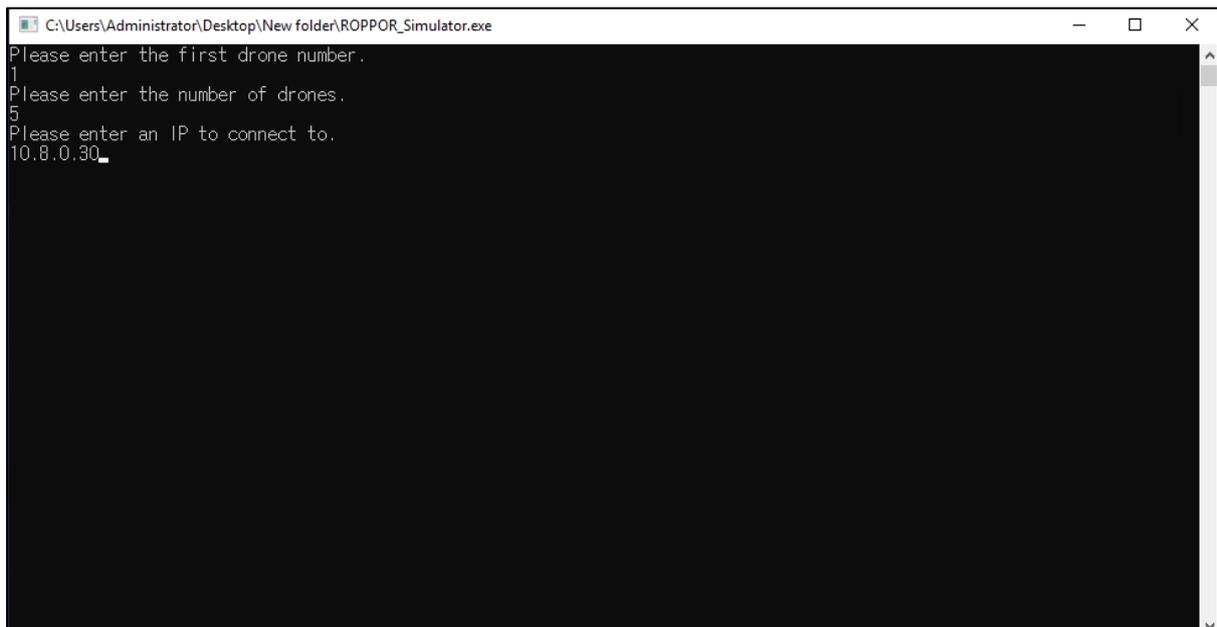

Figure 6 ROPPOR Simulator Q3

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4) Finally, type 'Server', 'Private' or 'Art' of the ROPPOR swarm drone software name for 'Enter the name of the product you want to access'. You can enter it regardless of the capital letter or not.
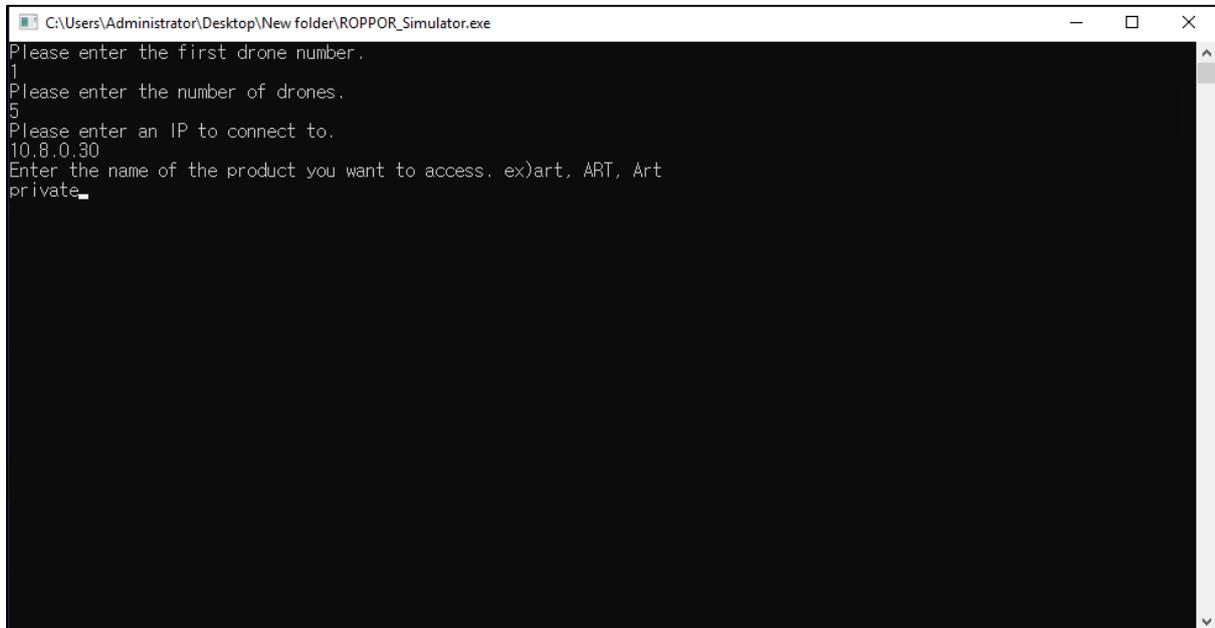

Figure 7 ROPPOR Simulator Q4

5) Verify that 'WebSocket Client Connected' and 'Config.ini has been downloaded success' are displayed in the following command window. The message is expressed as many as the number of virtual drones you have set.
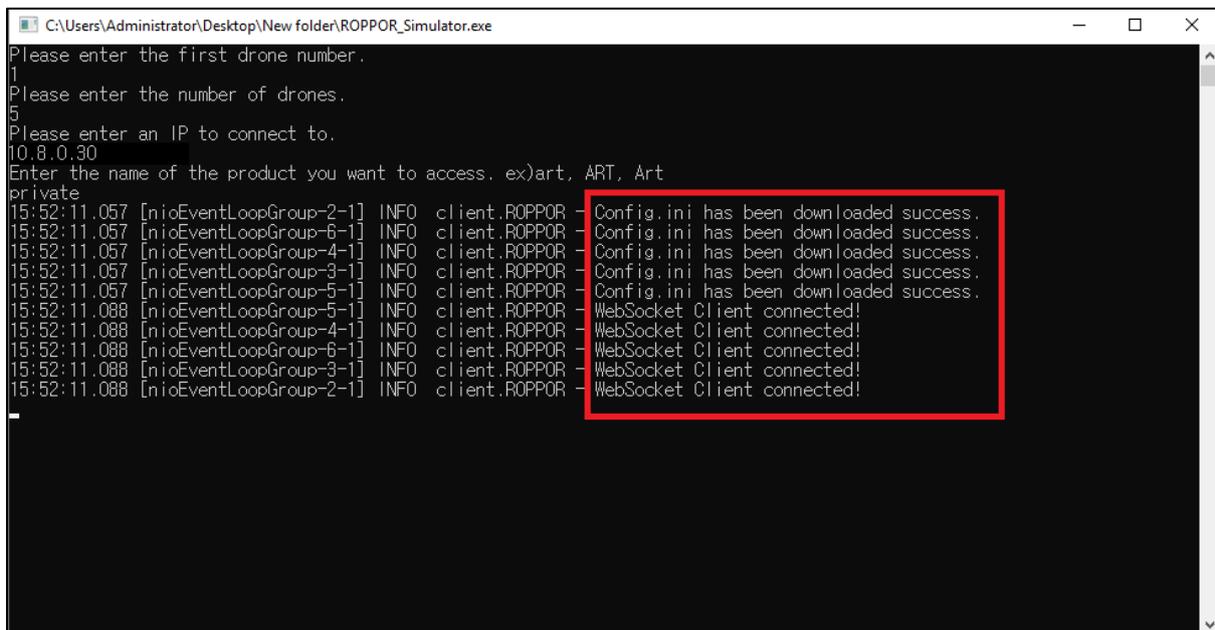

Figure 8 ROPPOR Simulator Notice

6) Next, verify a folder named 'FtpDownloadTest' and config.ini file is created on the desktop.
Also, in case you are using ROPPOR Art, the Path file is uploaded and stored in the corresponding folder when you upload it.
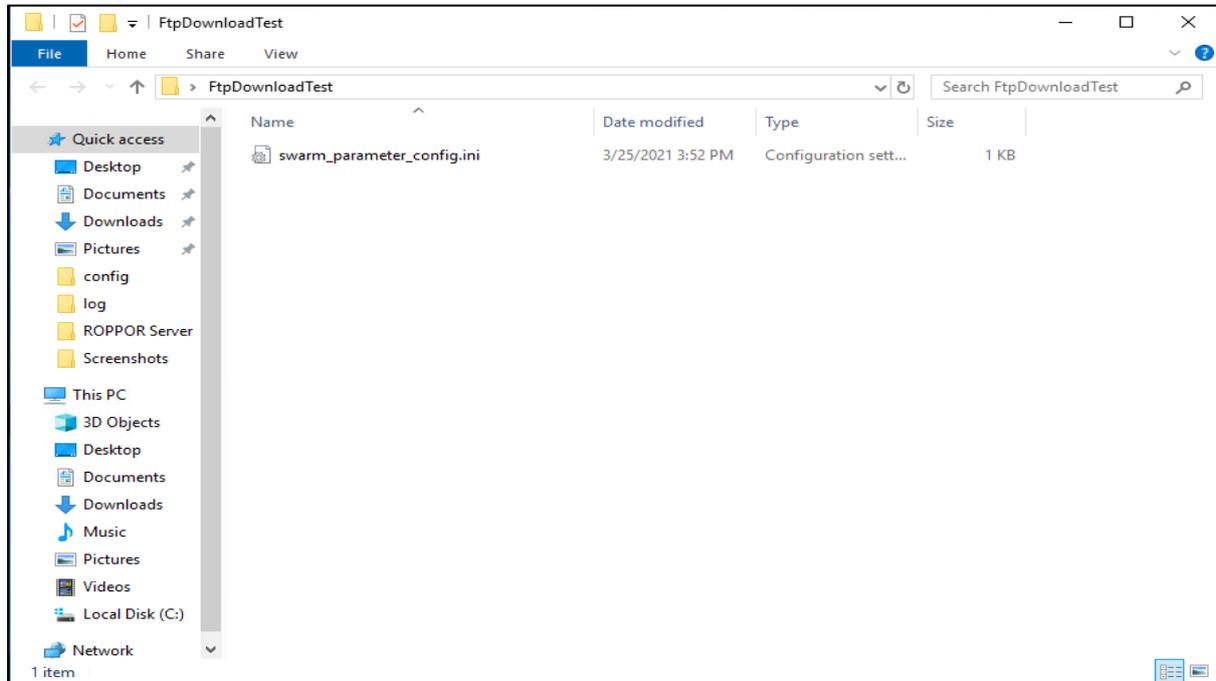

Figure 9 FtpDownloadTest Folder

7) If it has been run without any problems, now run the ROPPOR swarm drone ground control software on the operation PC to see if drones are displayed or not.
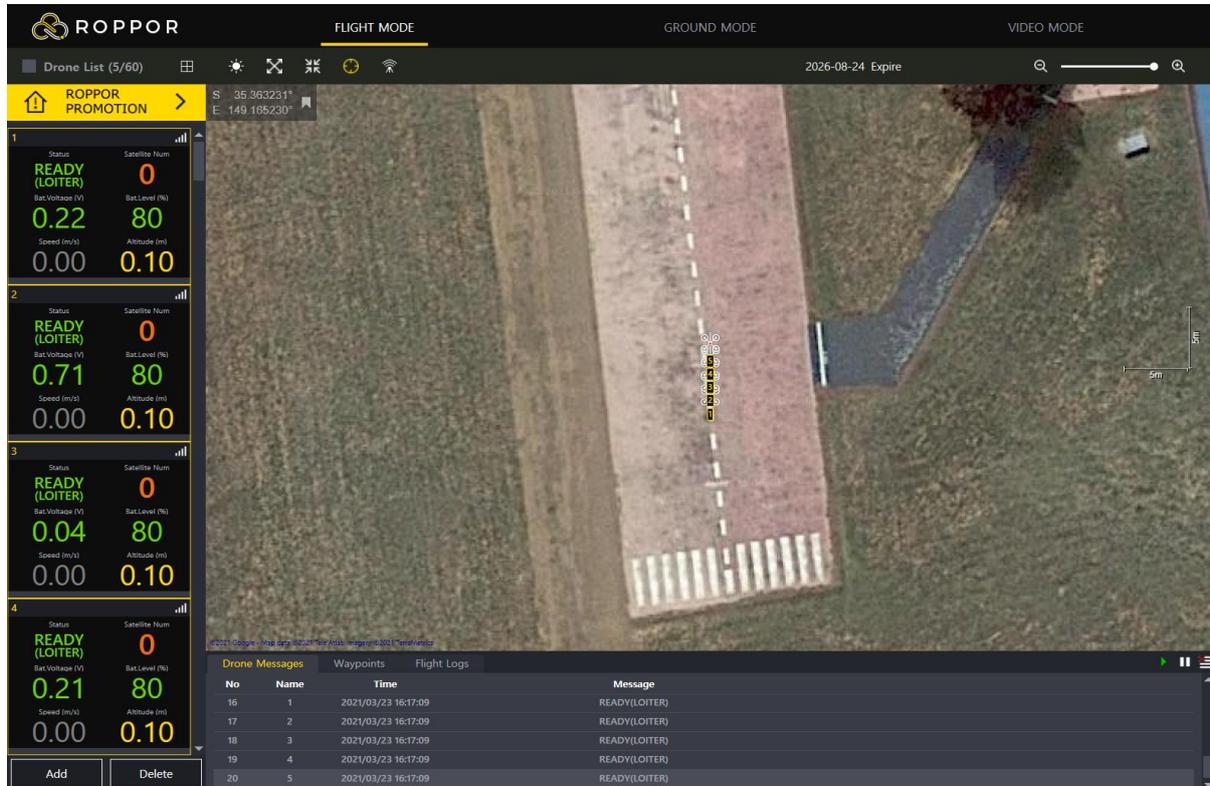

Figure 10 ROPPOR Virtual Drones

Using the generated virtual drone, test the simulation flight according to the function of the ROPPOR three types of software you have and check the data communication status of the site according to various flight sites.

※ Refer to the "Function Specifications of ROPPOR Ground Control Software" for information on how to use the ROPPOR three types software.