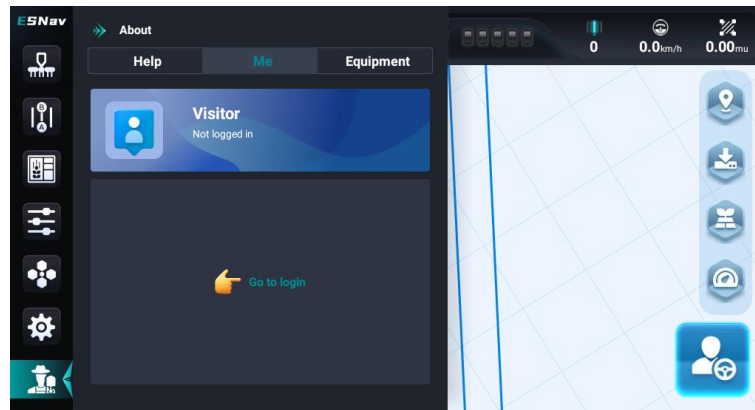**One click log upload**: Quickly send logs to the server for technicians checking.
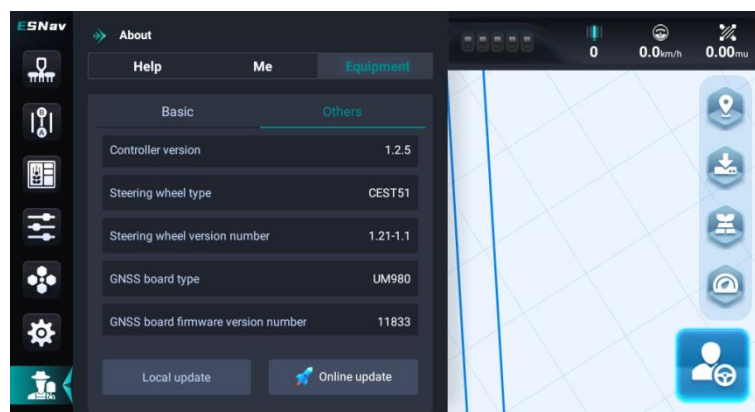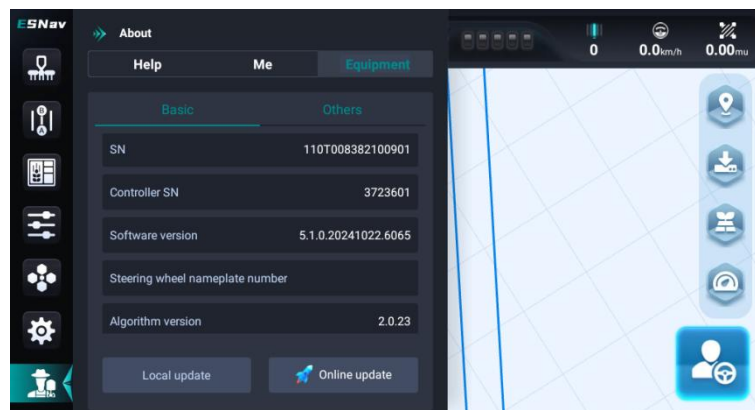
Parameters: Vehicle, configuration and calibration parameters, etc.

Reverse heading: When the vehicle is driving forward but the software interface indicates that it is reversing, please click it to get the correct heading.

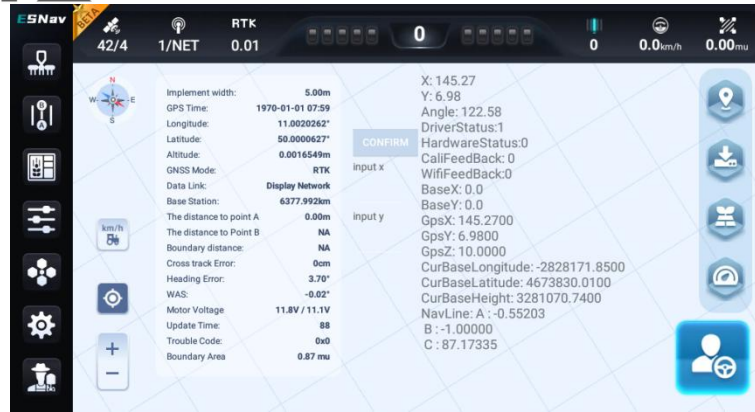Here it is available to connect to cloud server.

It is available to check basic information and technical information here.

15. Compass
Click it once to check the basic information. Click it seven times continuously to show the debugging information. It is able to modify the coordinates by inputting x and y manually when the device is in demonstration mode.

Base Station: The distance between the vehicle and the base station.

Cross track error: Lateral deviation. The real-time deviation between the current vehicle location and the marked guideline. The value is negative when the vehicle is on the left side of the guideline and positive when the vehicle is on the right side of the guideline.

Heading Error: The angle between guideline and vehicle heading.

WAS: The angle between guideline and front wheel.

Motor voltage: X/Y, X represents the current system voltage, Y represents the minimum voltage.

Trouble Code: The code shows up when there are any system error messages.

16. Tractor speed
Tractor speed in demonstration mode. It is available to adjust the tractor speed in the demonstration mode.

17. View switch
Switch between map orientation or vehicle orientation.

18. Zoom in/out
It can also zoom in or out of the interface by swiping fingers across the screen.

19. Vehicle and guideline
20. Guideline switching button
Click the button to quickly switch guidelines when the field has multiple guidelines.
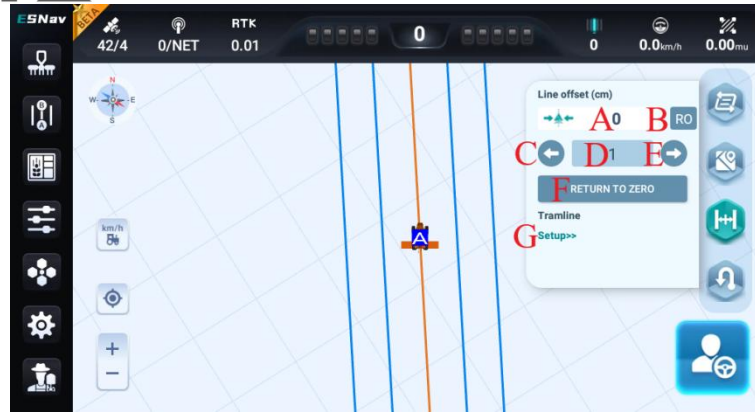
21. Work coverage track
The track switching method can be set in [Settings center -> System settings -> Navigation settings -> Coverage logging].

**Switch Mode**: Turn on/off the track manually.

**Automatic Mode**: Turn on the track automatically when engage the automatic mode.

22. Line offset

A: It records the shifted direction and the shifted value.

B: RO clears the offset of the guideline.

C: The guideline is shifted to the left.

D: Enter the offset distance, the maximum value is 999cm.

E: The guideline is shifted to the right.

F: It makes the lateral deviation and current guideline counts return to zero.

G: Click Setup to set the parameters of Tramline.

23. U-Turn
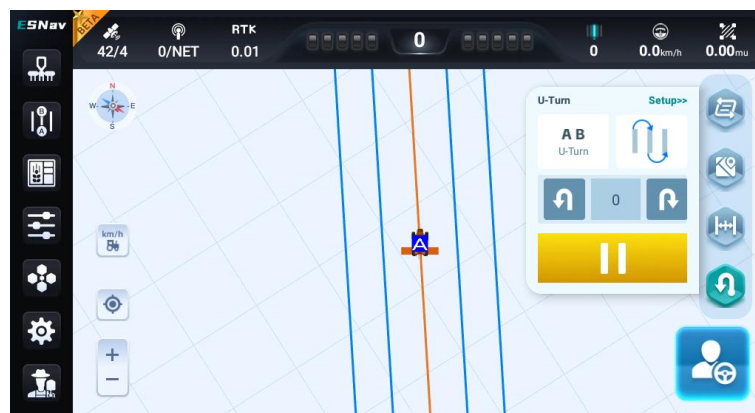
It is available to quickly access to U-turn page to enable U-turn or configure other advanced settings.

24. GBM
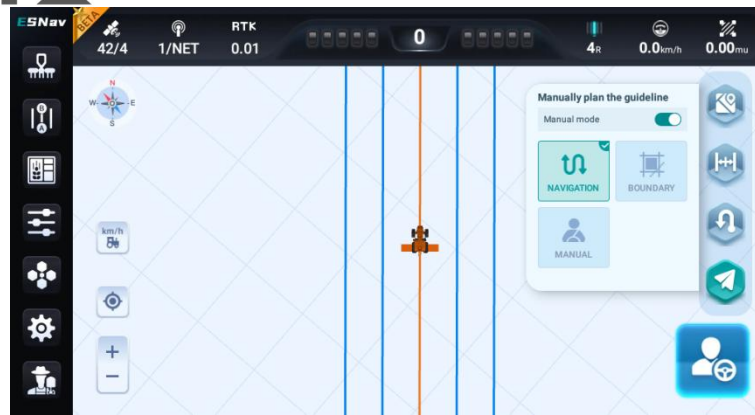
GUIDELINE: The vehicle will only recognize the guidelines and drive automatically after selection.

BOUNDARY: The vehicle will only recognize the boundary/headland and drive automatically after selection.

MANUAL: The vehicle will not be able to switch to the automatic driving mode after selection.
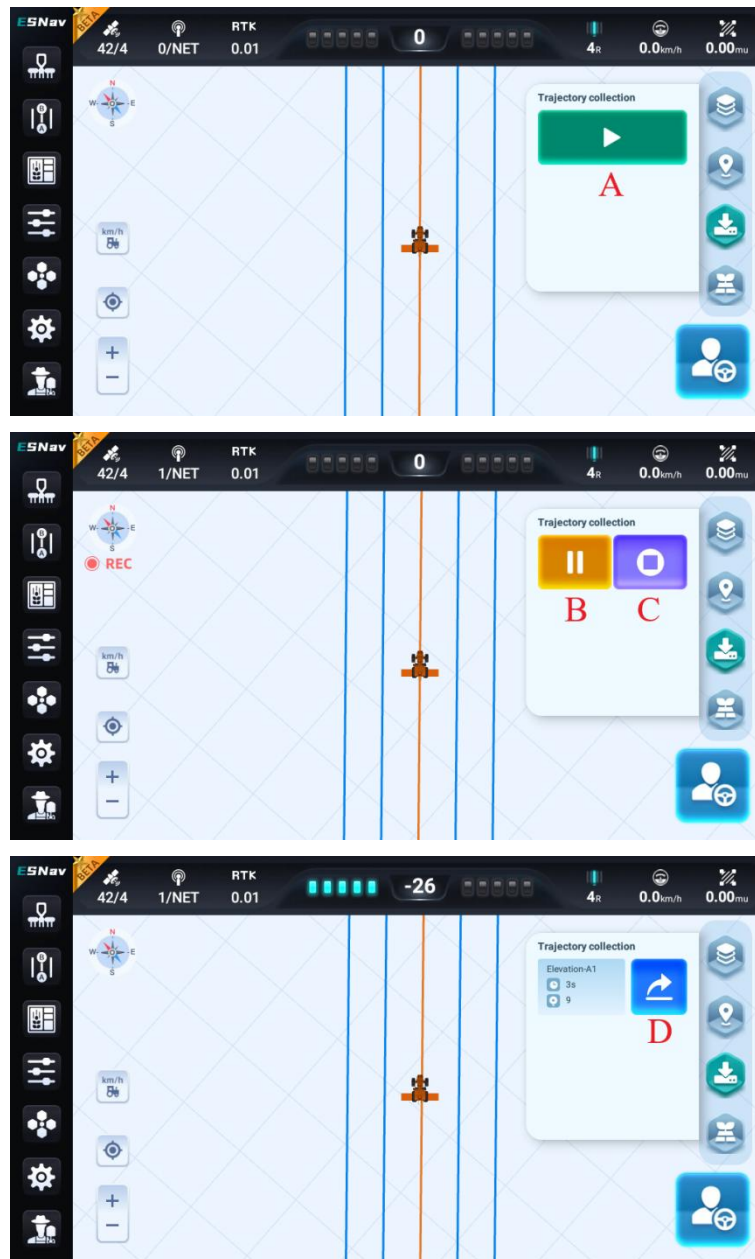
25. Coverage layers setting
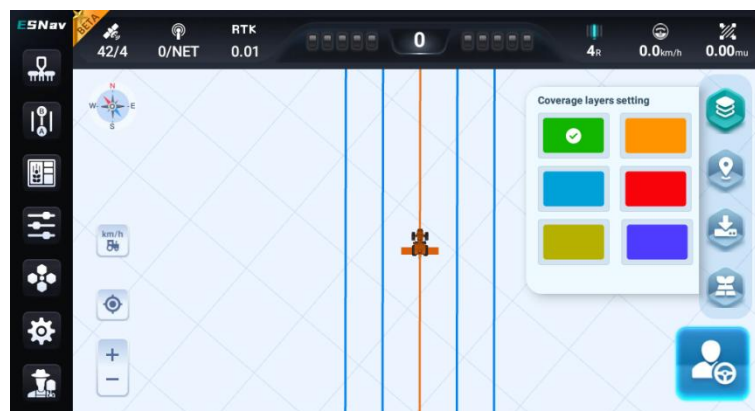
26. Marker point and Marker line
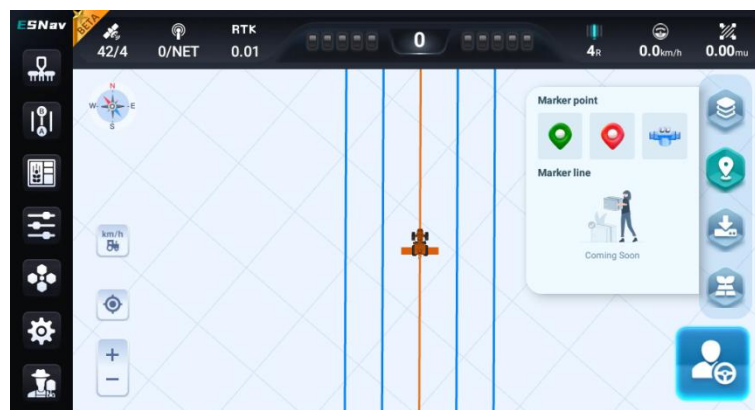
27. Trajectory collection

It is available to start collecting the real trajectory of the vehicle, pause, continue, finish, and export the collection.

A: Start to collect the trajectory.

B: Pause the collection.

C: Finish the collection.

D: Export the trajectory file.

28. Job information

This module contains information of the current field, implements and row spacing.
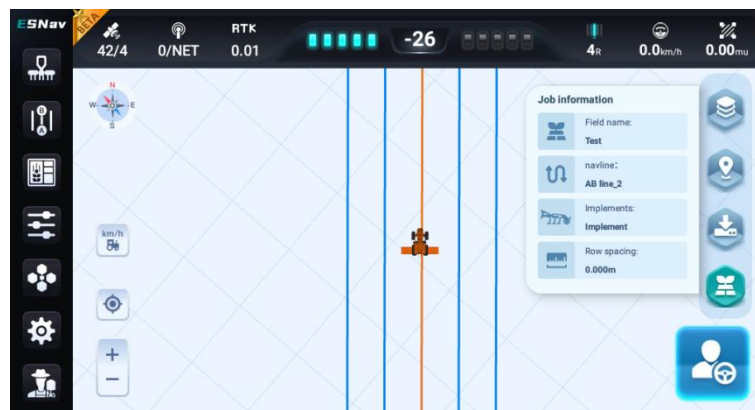
29. OBD settings

It is available to connect a OBD to your device. By now the new feature is under development.
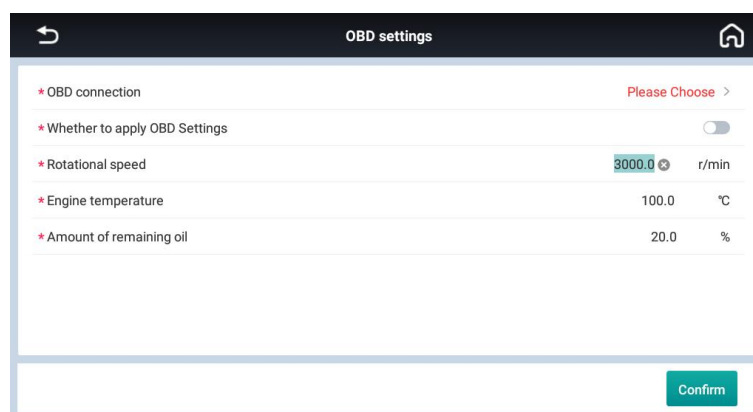
30. Engage or Disengage
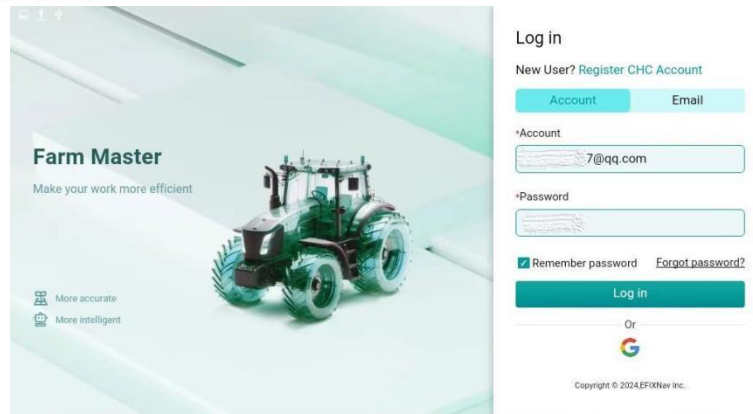
Automatic: Manual:

6 Main features

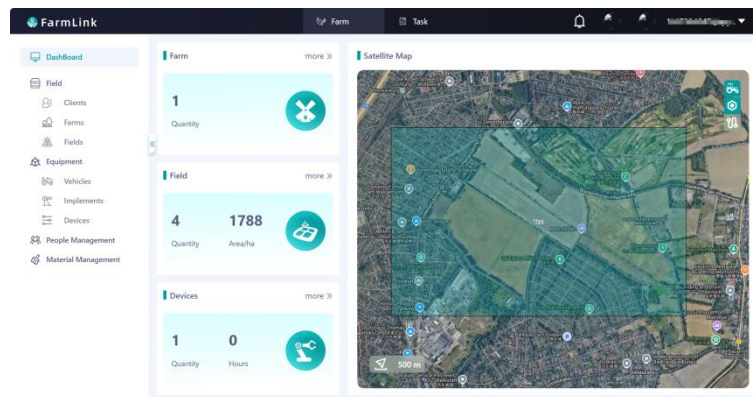## 6.1 Cloud services

1. Head to [About -> Me -> Go to login].
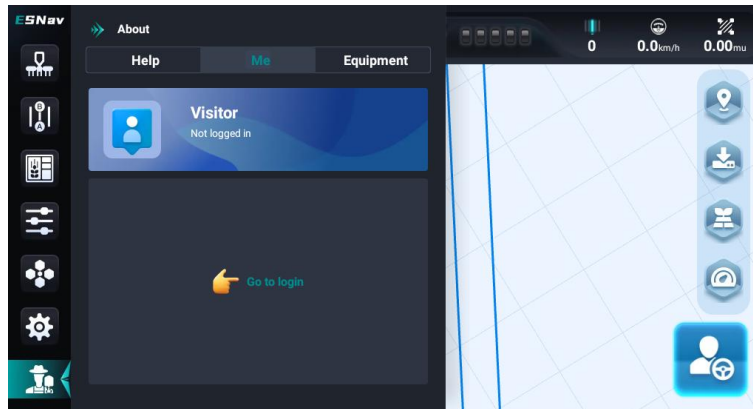

2. Register an new account here or use the account and password you have created to log in.
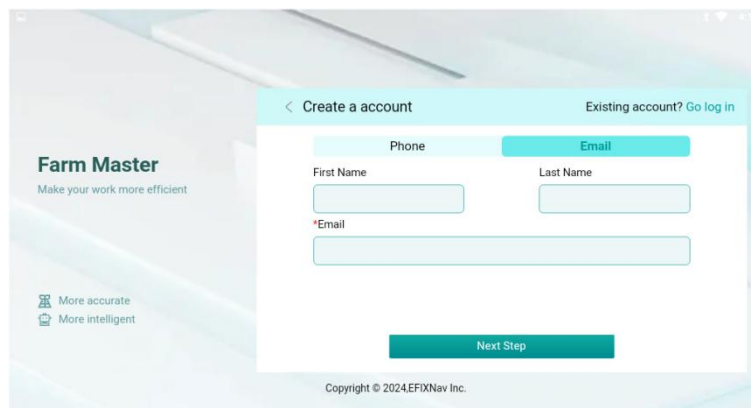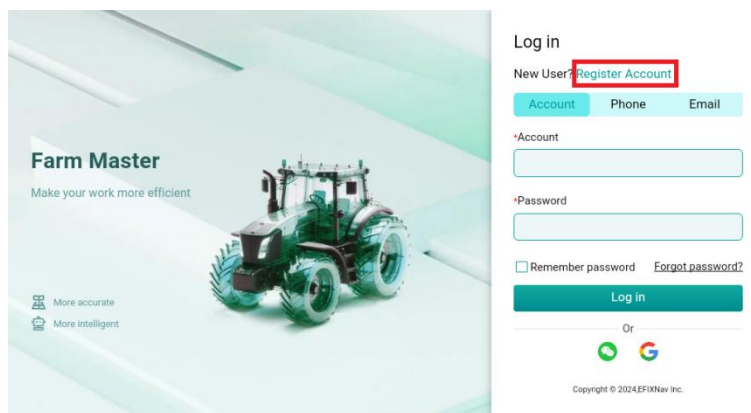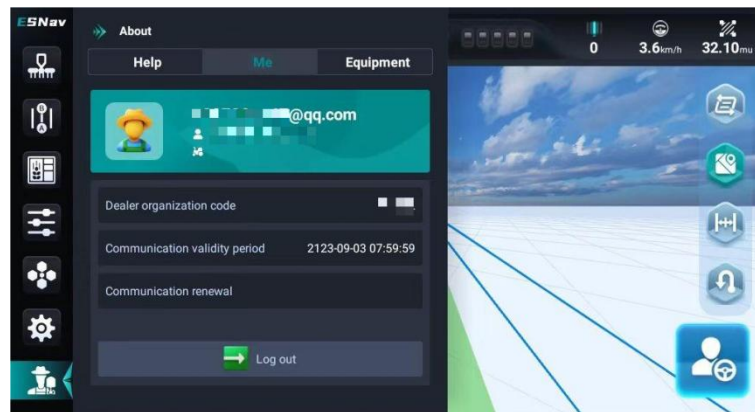
3. After logging in to cloud service, it is able to establish the two-way communication between ESNav5.0 software and cloud server.
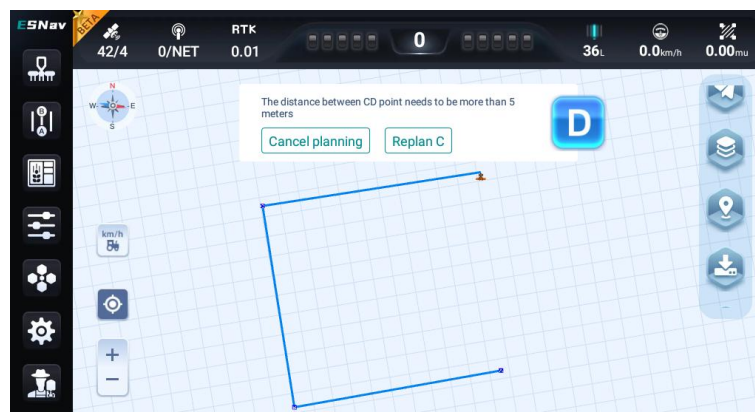

6.2 Advanced guideline modes

ESNav5.0 software also add some new guidelines modes which includes looped guideline and whole area path line compared with ESNav3.0 software.
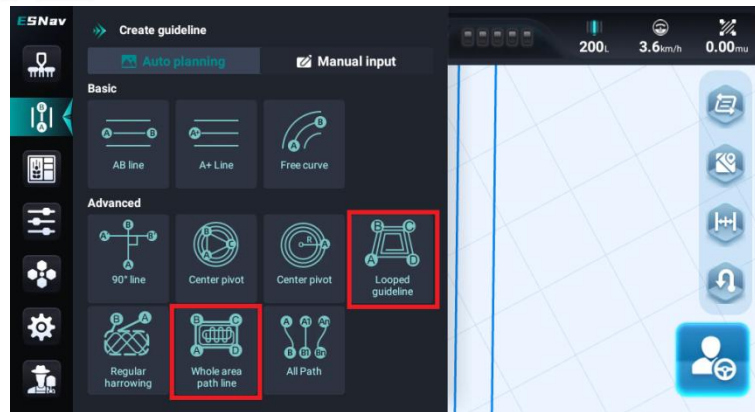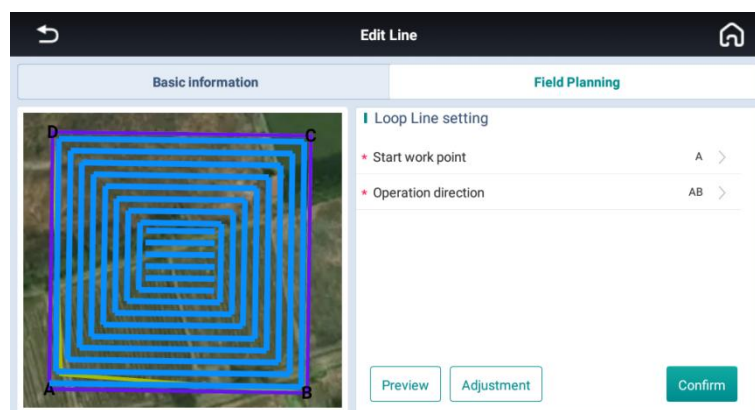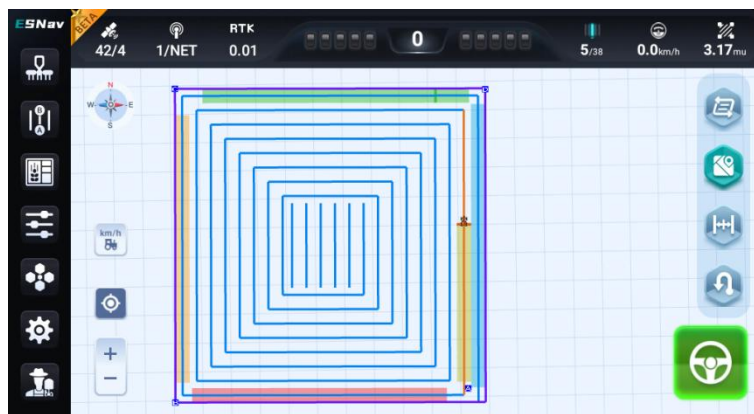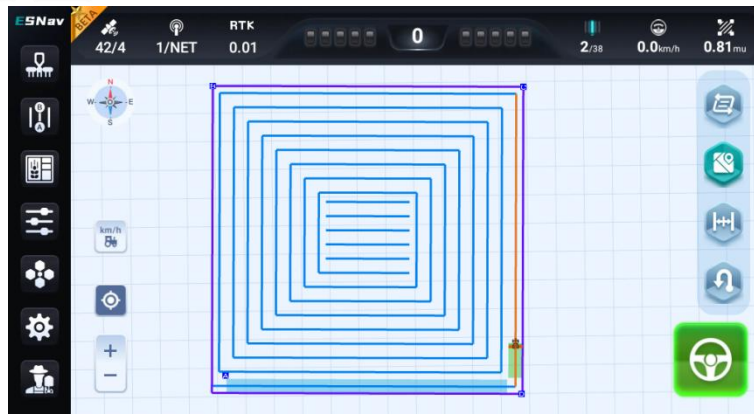
6.2.1   Looped guideline

1. The creation of a looped guideline required 4 points.

2. After creating a quadrilateral based on four points, it is available to adjust the starting point and starting direction.
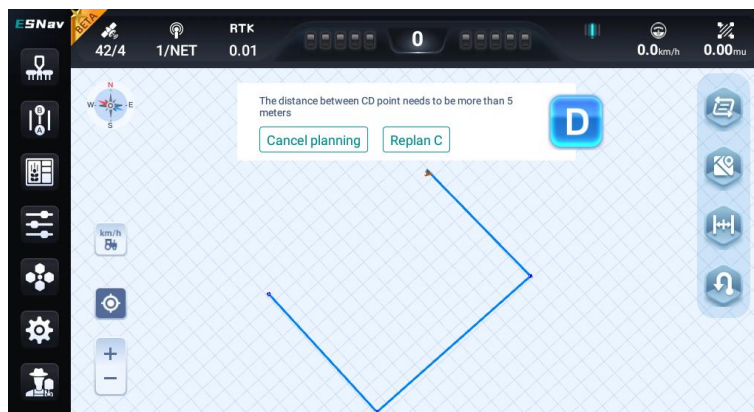

3. Go back to the main interface and start the auto steering based on the planned guidelines. System will manually disengage and it is necessary to manually switch from one guideline to another one when arriving at the corner.
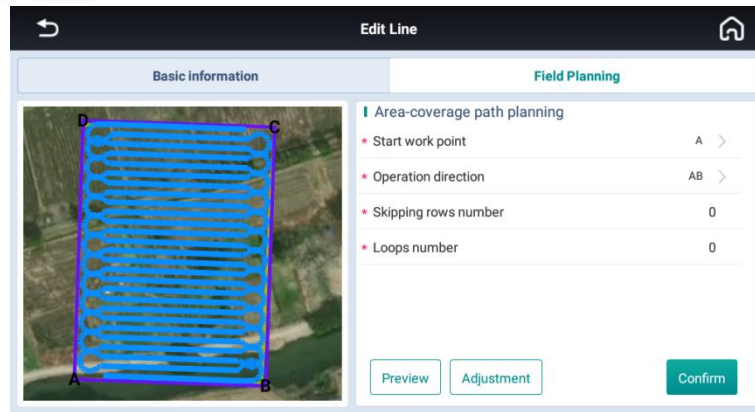
6.2.2　Whole area path line

1. A whole area path line needs 4 points as well.

2. After creating a quadrilateral based on four points, it is available to adjust the starting point, starting direction, skipping rows and loops number as below.

3. Go back to the main interface and start the auto steering based on the planned guidelines. All process are with auto steering and there is unnecessary to manually intervene.
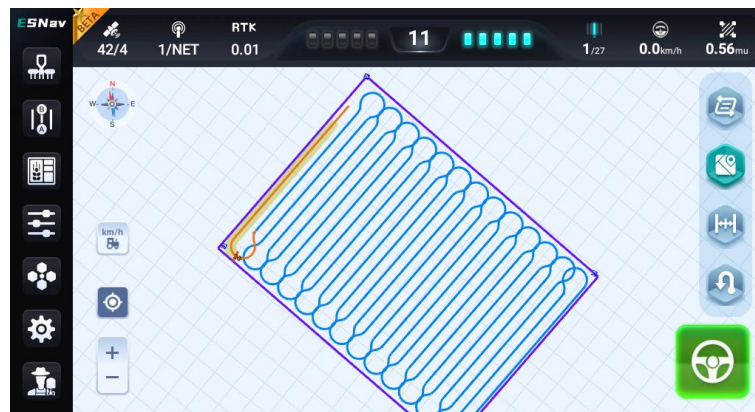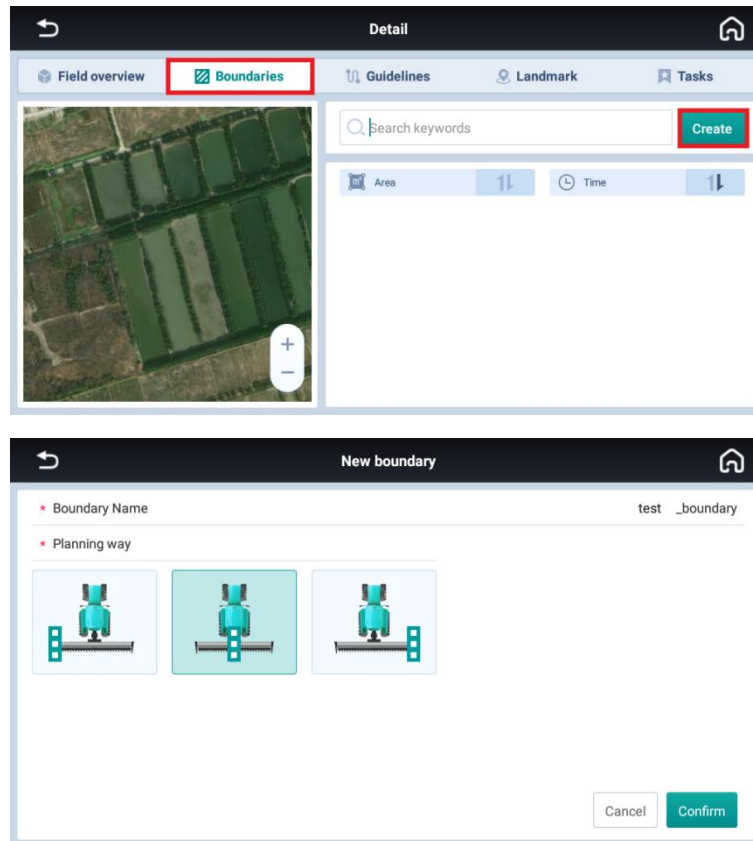
6.3 New Boundary

1. Go to [Settings center -> Agricultural management -> Field -> Details].

Create a new boundary with different implement location.

2. It is able to plan straight line and curve line by pressing the first Pause/Start button. Also it is able to add/delete mark point on the boundary by pressing the second/third button. After finish the boundary recording, please click final button to complete it.
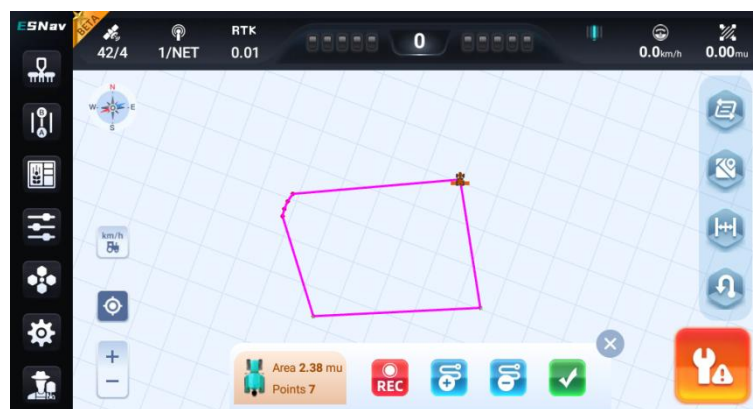
3. Now it supports to set spacing width and the maximum 10 headlines.
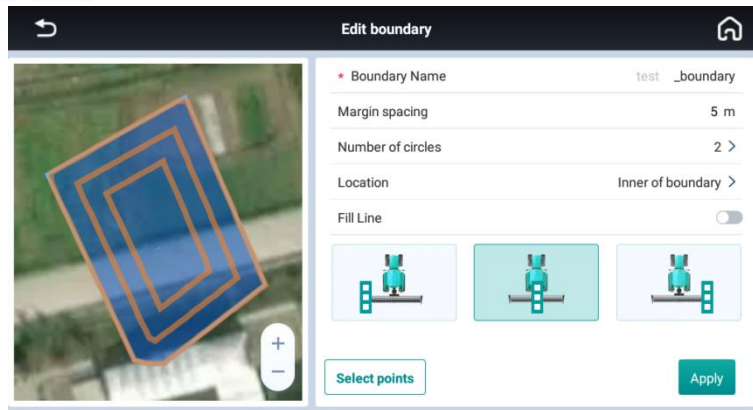
4. It is available to snap points to create AB line or curve line on the boundary. In addition, The offset distance can be set as well and the default distance is half of the implement width.
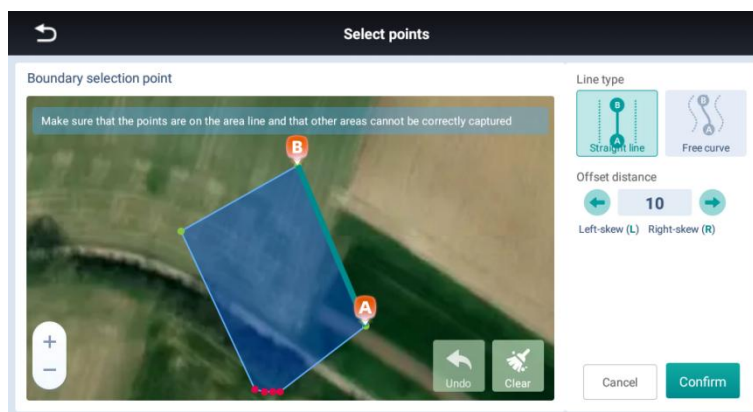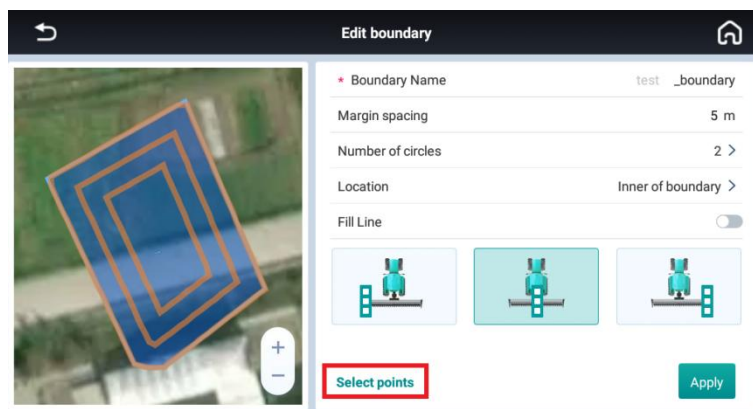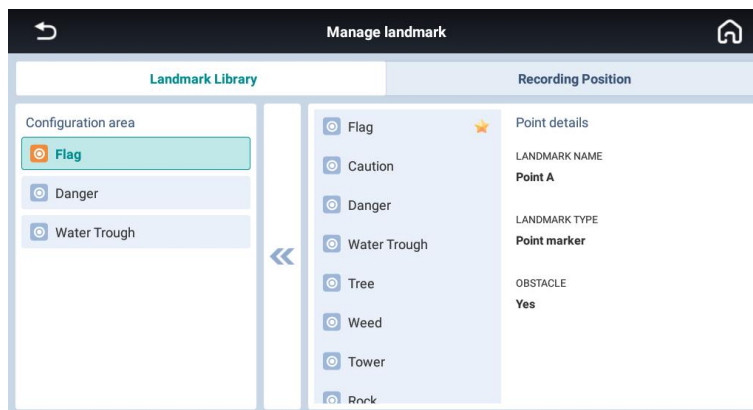

6.4 Landmarks

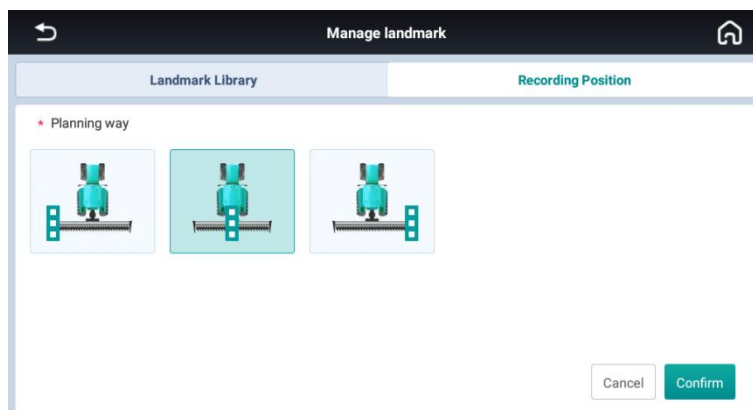ESNav5.0 software can support to add landmarks to remind users when work on the field at night.

1. Go to [Settings center -> Agricultural management -> Field -> Detail -> Landmark].
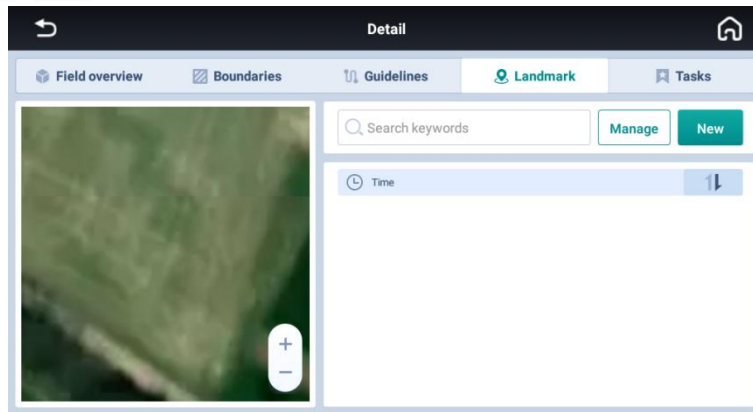
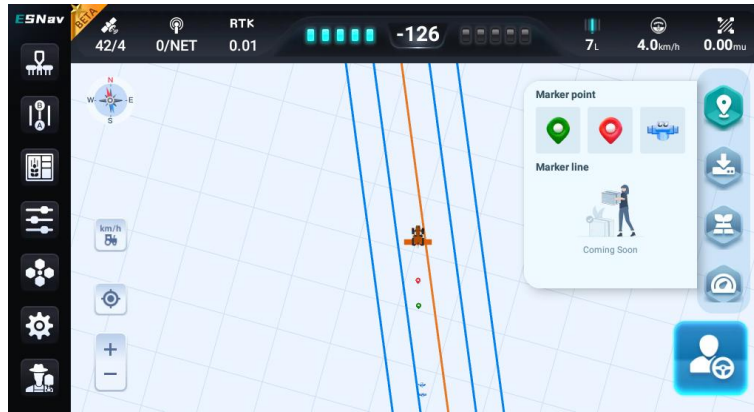2. Different markers can be configured in the Landmark Library.

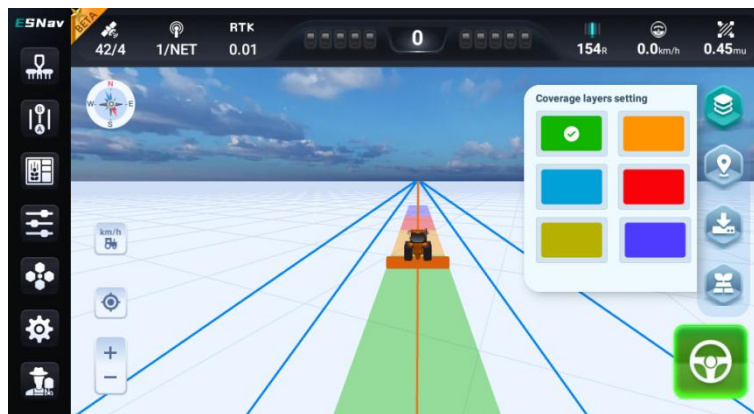3. Setting the marker reference in recording position.

4. It is available to set markers in the main interface by shortcut icon.
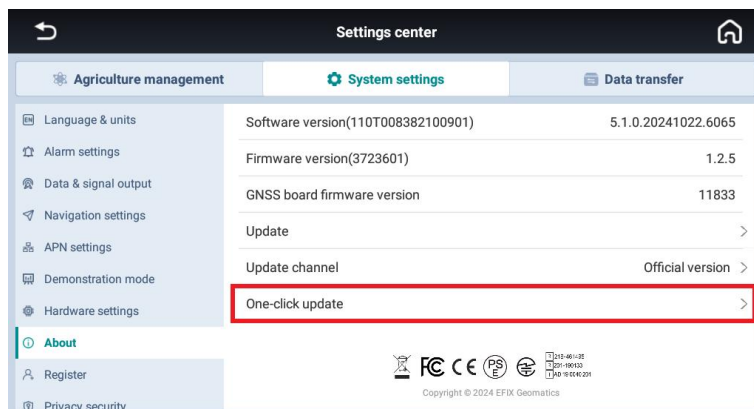
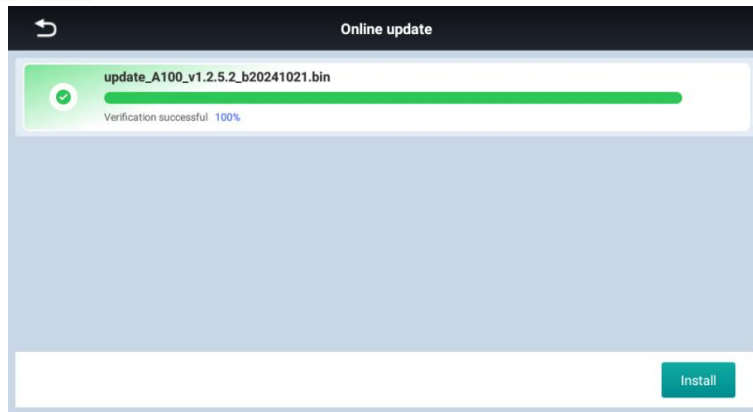## 6.5 Track painting color

Track painting color can support 6 colors right now. It is available to change the painting color real time.
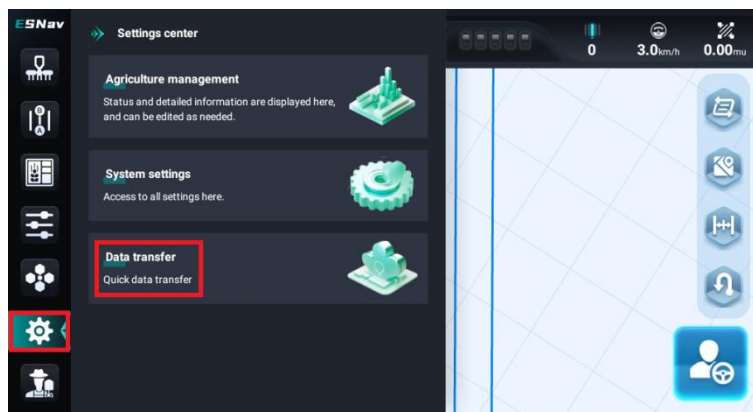

6.6 One-click upgrade

Go to [Settings center -> System settings -> About -> One-click upgrade]. The software and the firmware will be upgraded to the newest release with a click of One-click upgrade.
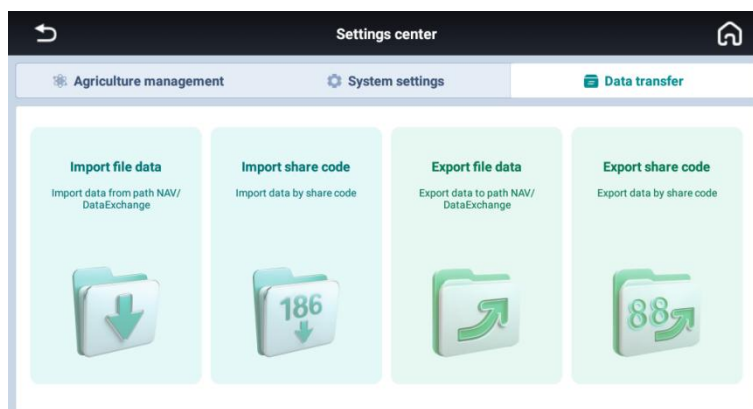
6.7 Data transfer

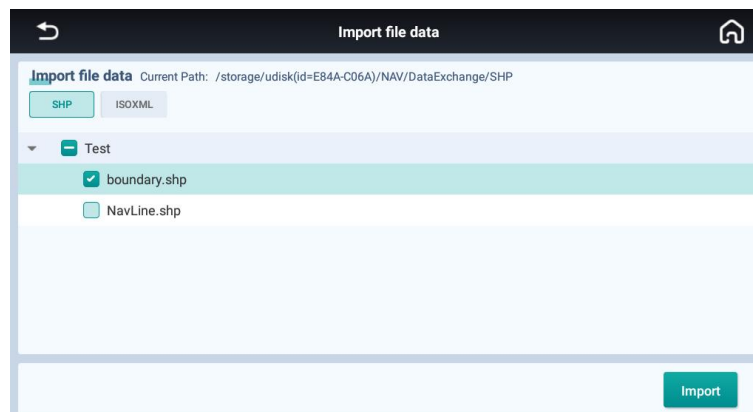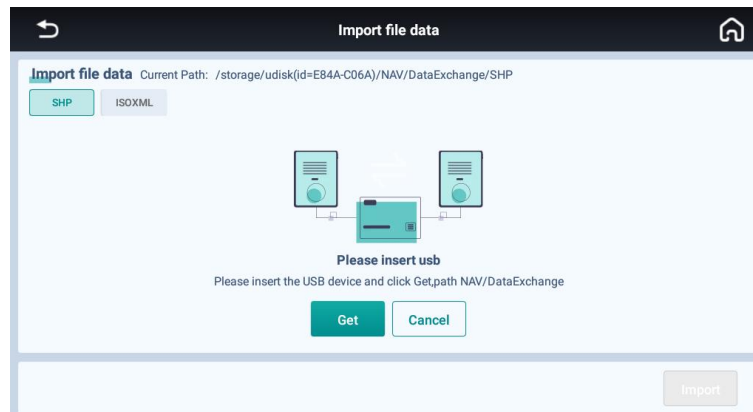1. Go to [Settings center -> Data transfer].

2. It is available to import file data, import by share code, export file data, and export by share code.
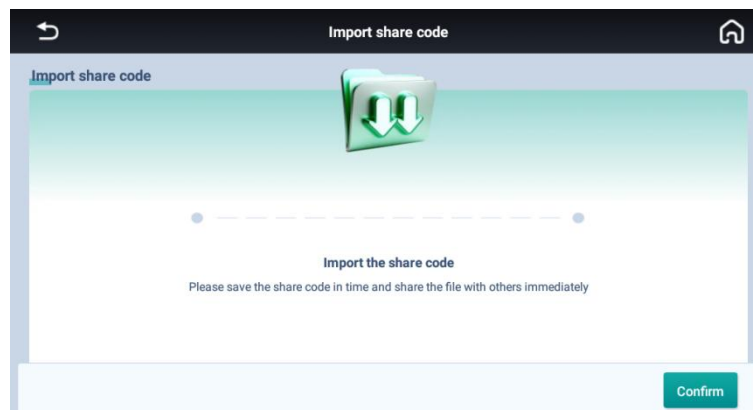

3. When import file, currently SHP and ISOXML file are supported. It is necessary to create a folder named NAV/DataExchange/SHP or NAV/DataExchange/ISOXML, and put the SHP folder or ISOXML file into this directory, finally please insert the USB device to the tablet and the software will recognize the USB and files automatically,
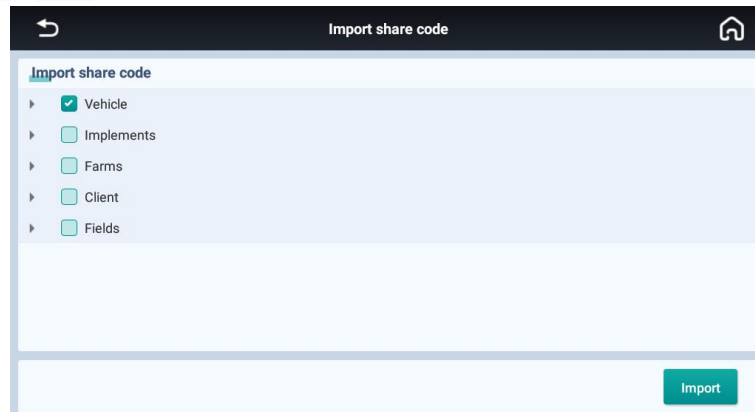
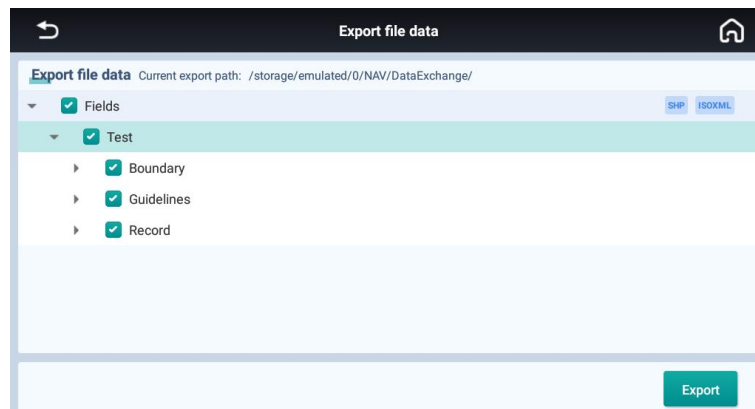please select the file you want to import and import it.

4. When import by share code, please type the code from another tablet, then it will jump to import interface and please select the file to import.
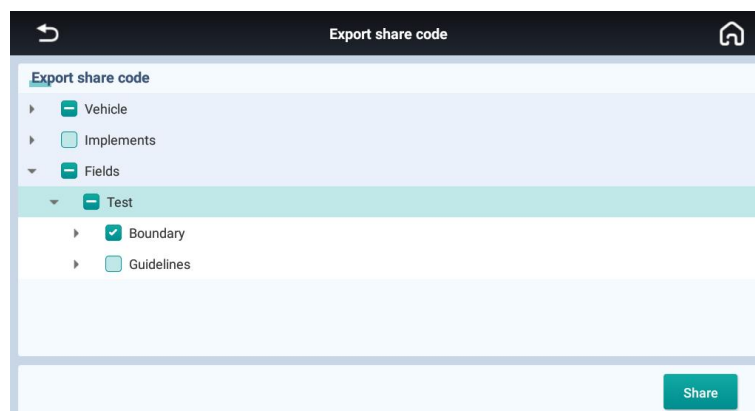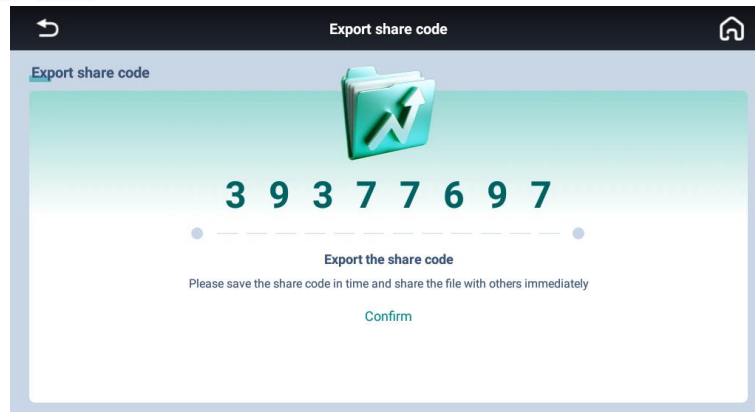
5. When export file, currently SHP and ISOXML file are supported. It is available to export to the internal memory or external USB device.
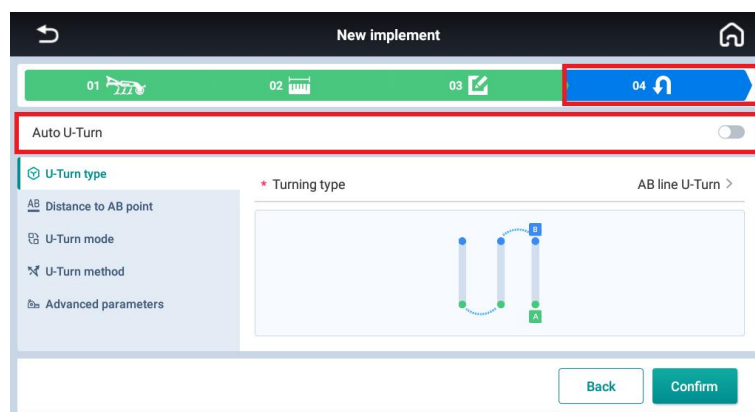

6. When export by share code, it is able to export vehicle, implements and fields information to another tablet. Please select the file and click Share, finally it will generate the sharing code.
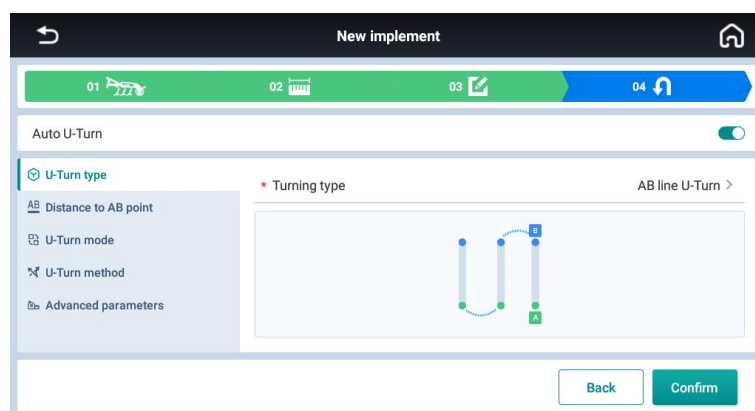
6.8 Advanced U-Turn

1. Go to [Settings center -> Agricultural management -> Implement], it is available to enable/disable Auto U-turn in the first option.
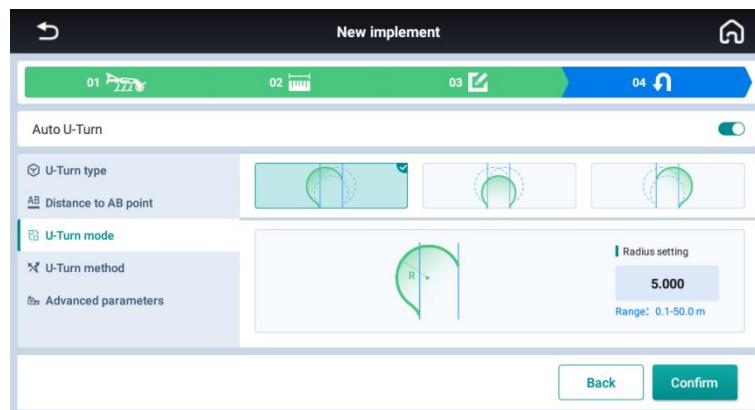

2. It is available to select the U-Turn type including AB line U-Turn, A+ line U-Turn, Boundary U-Turn, and Headline U-Turn.
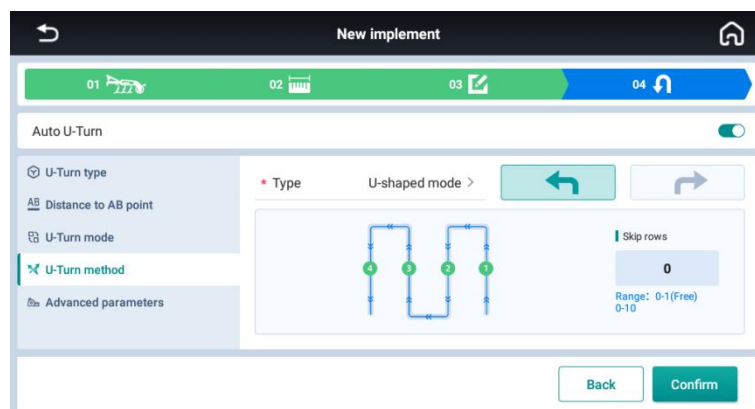

3. Also it is possible to determine where the vehicle enables the auto U-Turn feature by setting the distance to AB point.
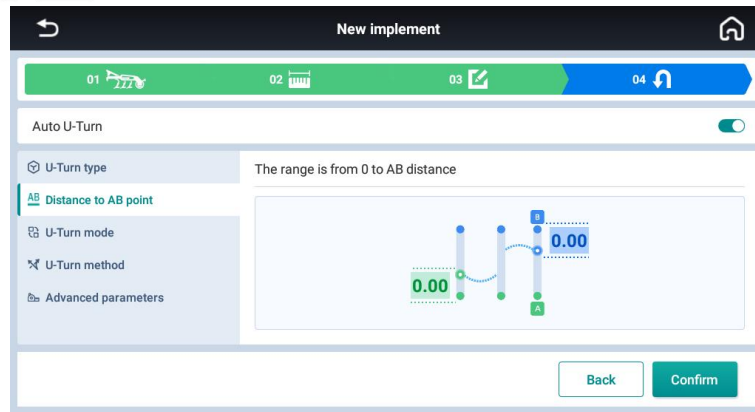
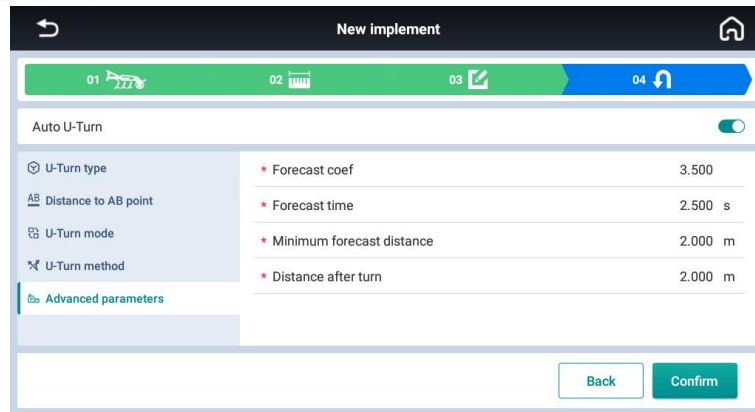4. It is accessible to select the U-Turn shape and set the radius.

5. It is feasible to choose the U-Turn method including U-shaped mode, Alternate mode, and one-way mode with defining the U-Turn direction and skip rows.

6. There are some advanced parameters related to U-Turn.

Forecast coef: Decrease the value if the vehicle enters the next guideline slowly after U-turn. The range is from 0.1 to 5.0.

Forecast time: Increase the value if the vehicle deviation distance is large during U-turn. The range is from 0.1 to 5.0.

Minimum forecast distance: Predict the turnaround path by the vehicle's current position to give sufficient time for U-turn. The smaller the value, the later the vehicle turns around. The range for transplanter is 1.7-2.5, for tractor is 2.0-4.0 and the adjustment interval is 0.1.
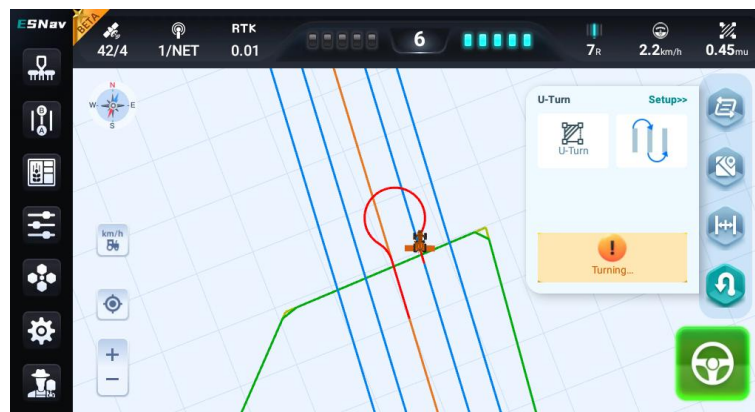
Distance After Turn: Distance required for vehicle to fully enter the guideline after U-turn.

7. In the main interface, the tractor will start the auto U-turn based on the distance to AB line. Also it is available to start the U-turn by manual settings.
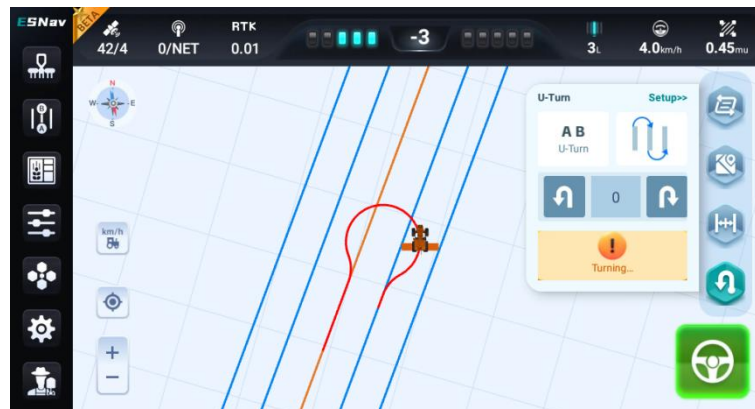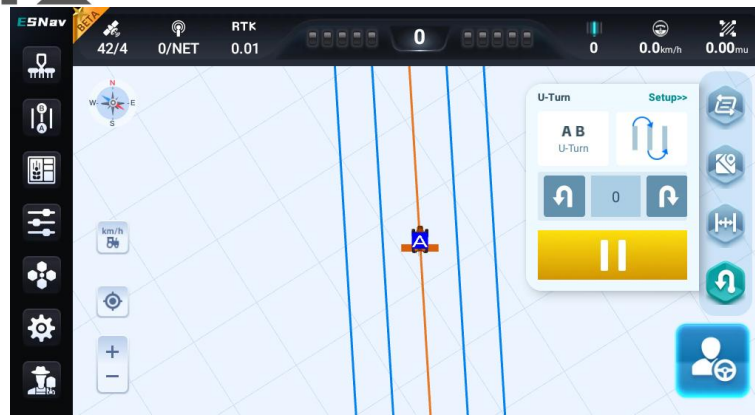
8. In addition, boundary U-turn can also work as the preset distance to the boundary.
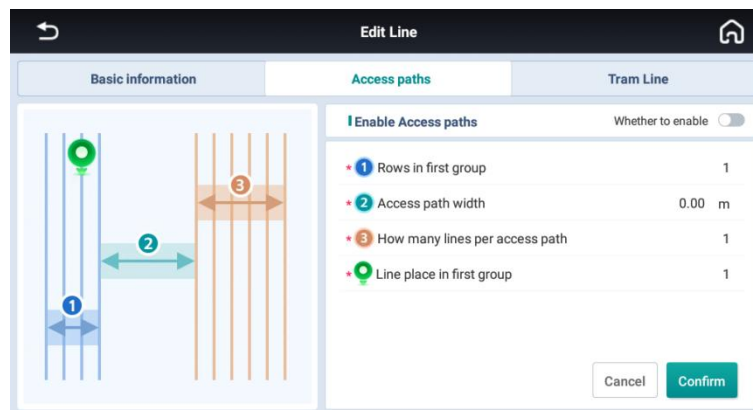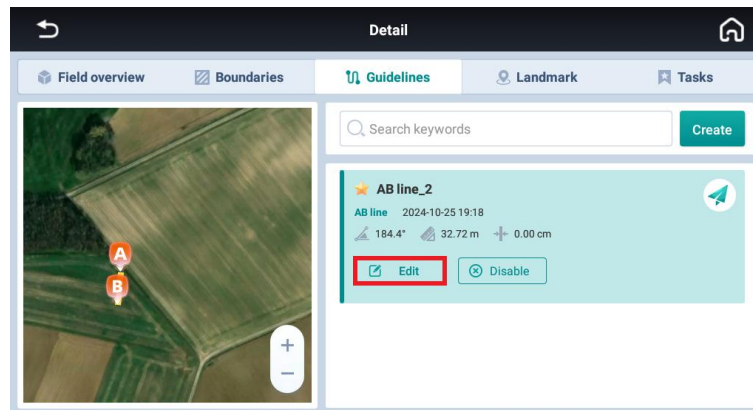

6.9 Access paths

Access paths feature usually is used for drainage ditch scenarios as the picture below.

1. Go to [Settings center -> Agricultural management -> Field -> Detail -> Guidelines].


Rows in first group: The number of lines of the first group.

Access path width: The distance between each two access path.

How many lines per access path: The number of lines for each access path.
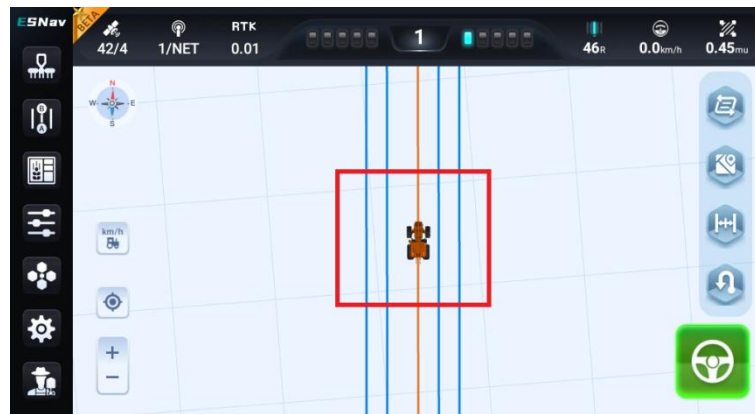
Line place in first group: The number you enter will decide which line will be line 0 in the first group.

2. Here take an example, set 2 rows in the first group, 1m access path width, 3 rows per access path and 1st place in the first group.
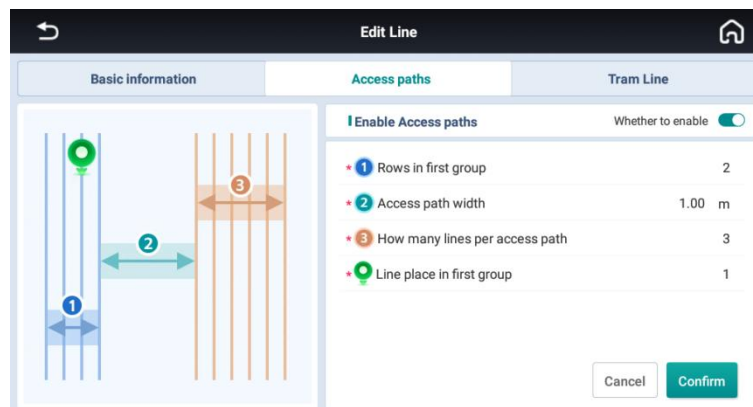
3. Go back to main interface and check the display.

6.10 Tram line

The principles of tramlines, they are placed in the field at seeding time. The width of the sprayboom has to be evenly divisible by the drill/air-seeder width, for example a 30' air-seeder and a 60'spray boom or a 40'air-seeder and a 120'spray boom.

1. Go to [Settings center -> Agricultural management -> Field -> Detail -> Guidelines].
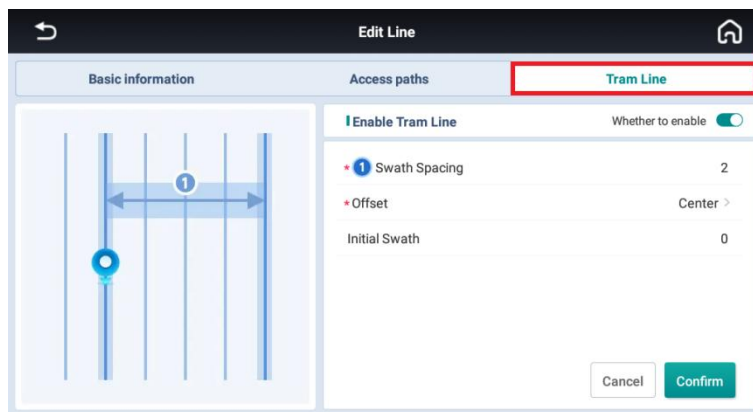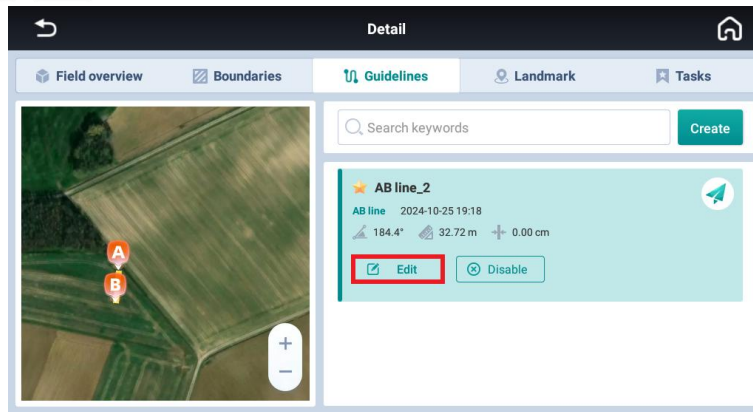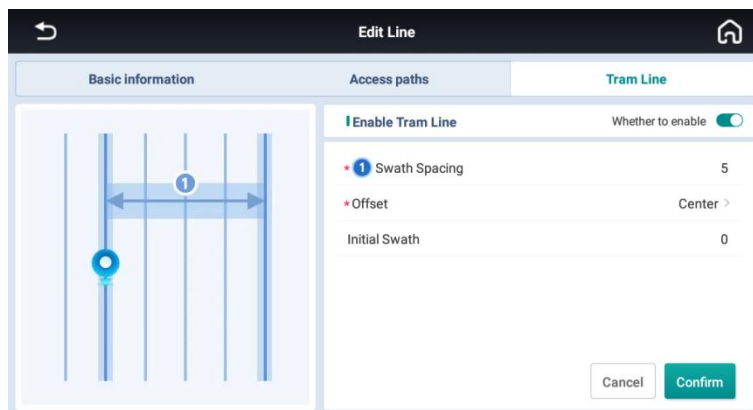
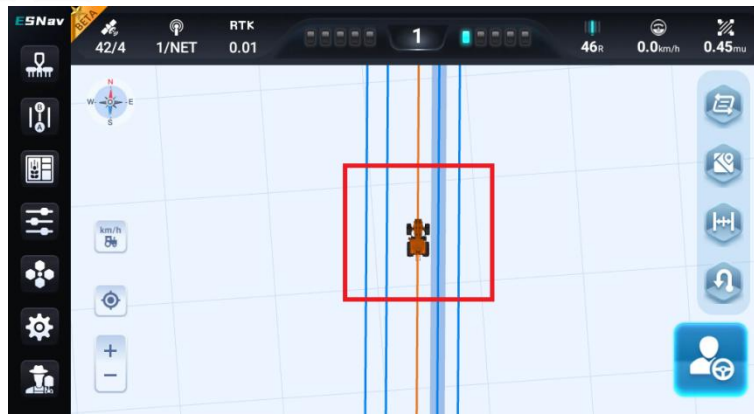Swath Spacing: The skipping rows and the range is from 1 to 99.

Offset: Select among left, center, and right.

Initial Swath: The location of the first Tram line line number.
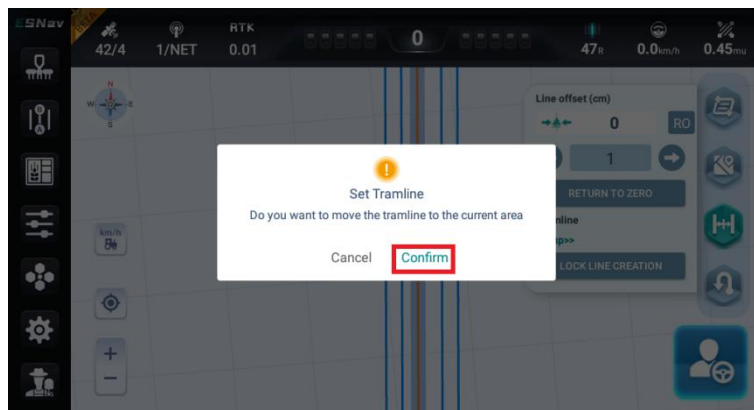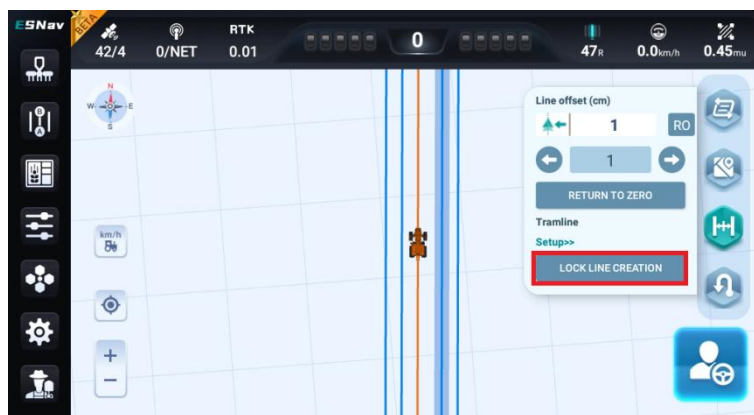
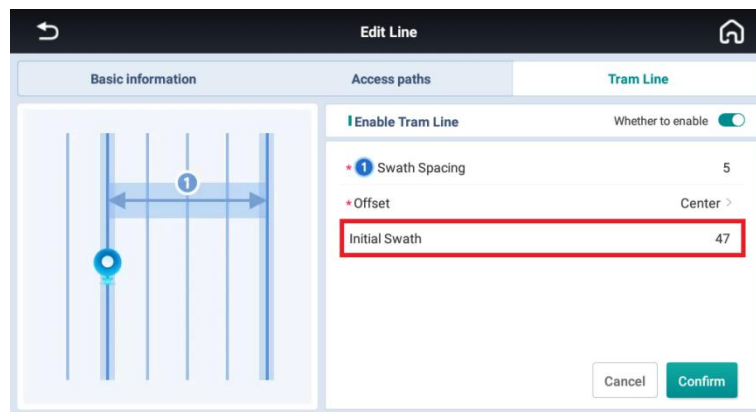2. Here take an example, set Swath Spacing to 5, select Offset as Center, and set Iitial Swath to 0.
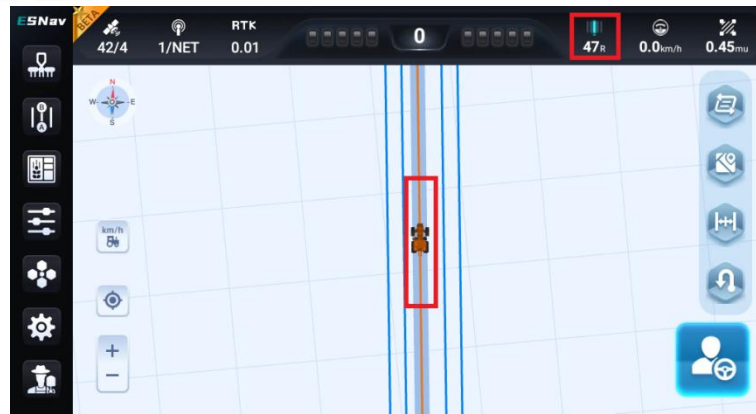

3. Go back to main interface and check the display.

4. Also it is possible to change the initial swath.

6.11 Trajectory recording

With trajectory recording feature,   software can record real-time track 3D coordinates, which can be exported in txt and shp formats. In Brazil, many customers want to record the real track when doing auto steering, because some ground may be not flat and the vehicle will slide, so it is necessary to record the real one and use the same one next time.
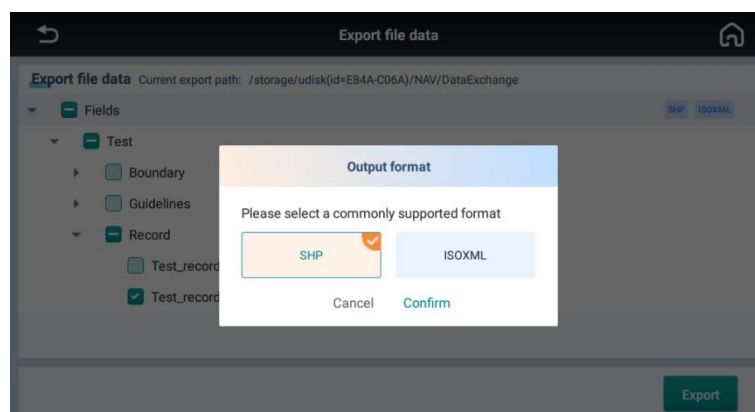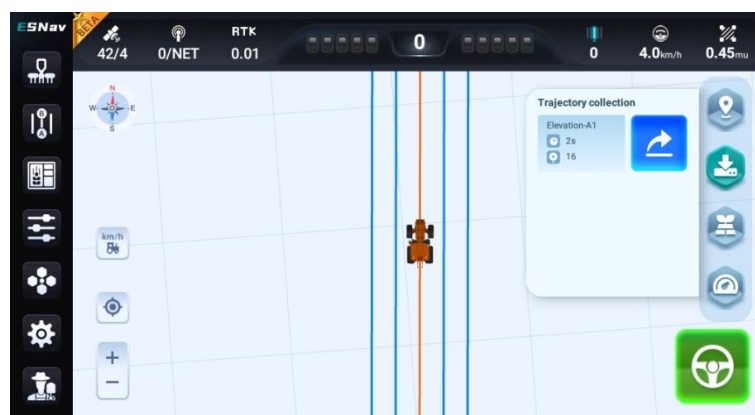
1. Click the icon as the picture below to enable the trajectory collection.
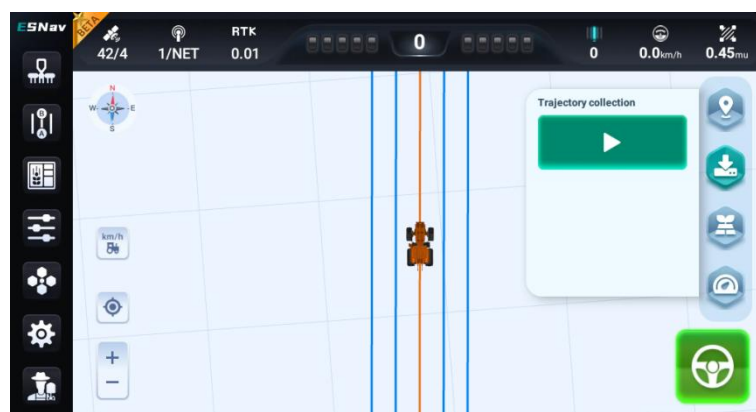
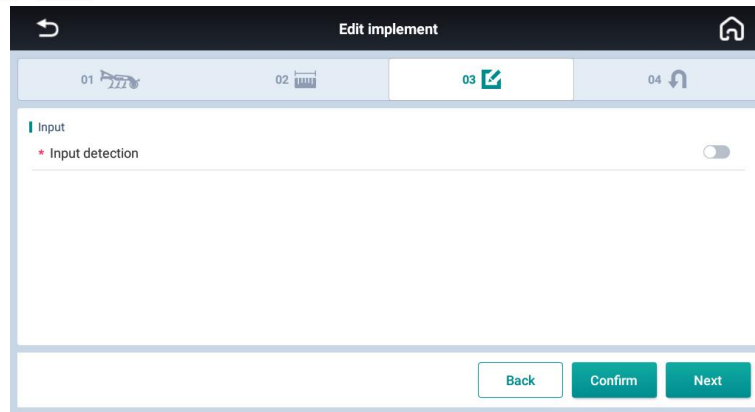2. It is able to pause or end the collection.
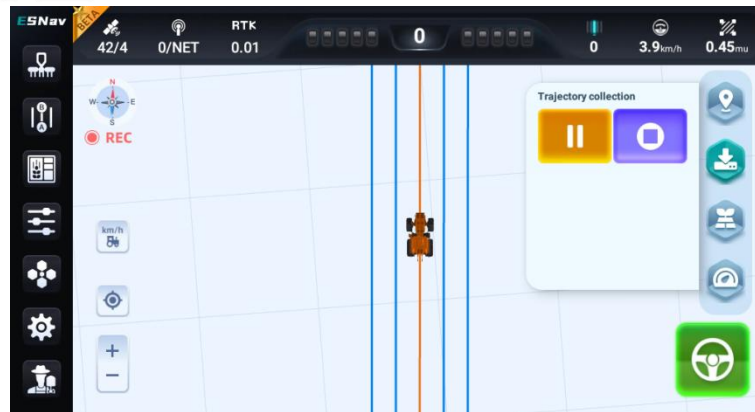
3. After enter the collection, it is able to check the basic information and export data by TXT/SHP/ISOXML format.
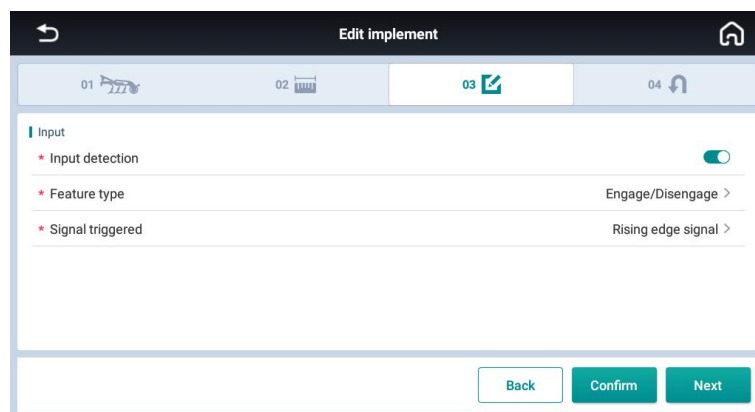

6.12 Implement signal input

1. Go to [Settings center -> Agricultural management -> Implement -> Input].
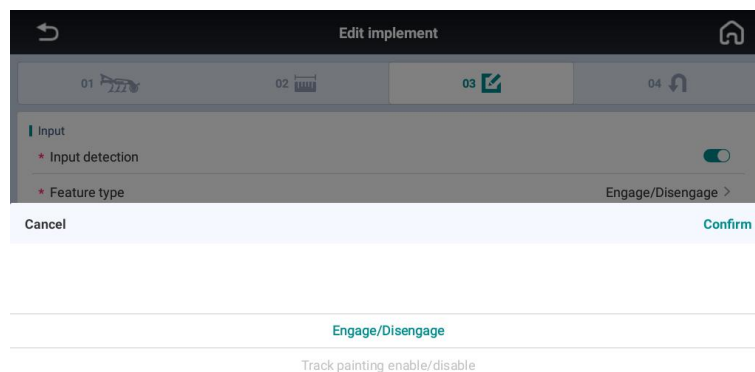
2. It is allowed to enable/disable autopilot or track painting.

3. Also four kinds of signals including rising edge signal, falling edge signal, high-level signal and low-level signal can be set to trigger software to execute specific instructions.
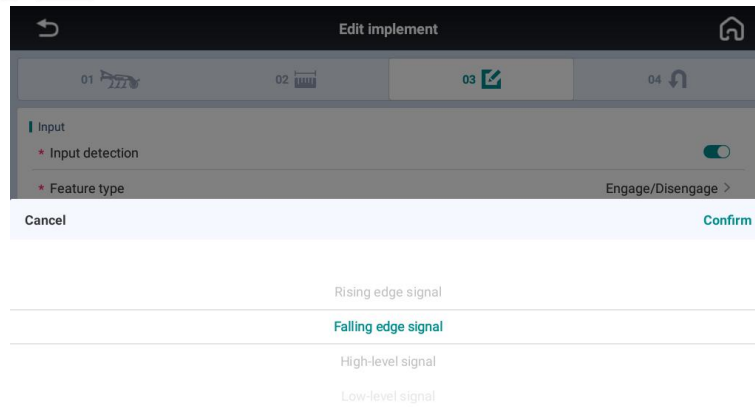
6.13 Multi-function panel

ESNav5.0 also can support to query the multi-function panel information and customize different features for reserved button *
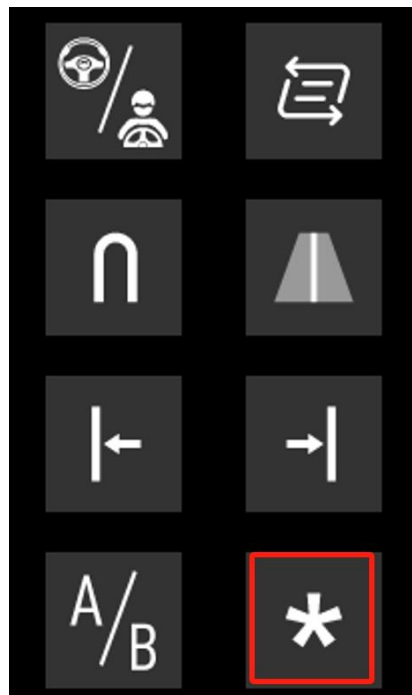
1. Go to [Settings center -> System settings -> Hardware settings -> Handle] to check the handle version.
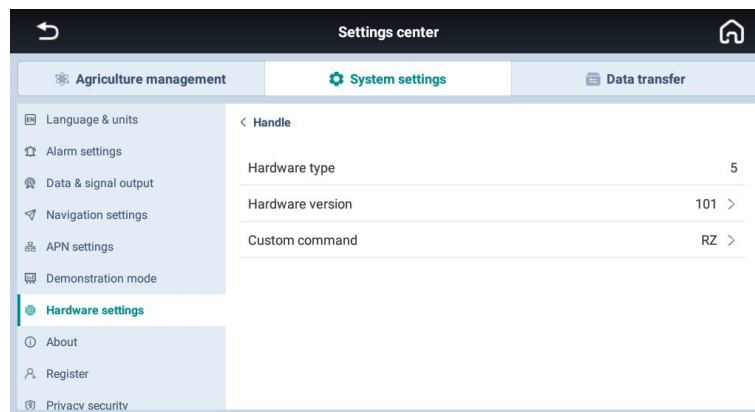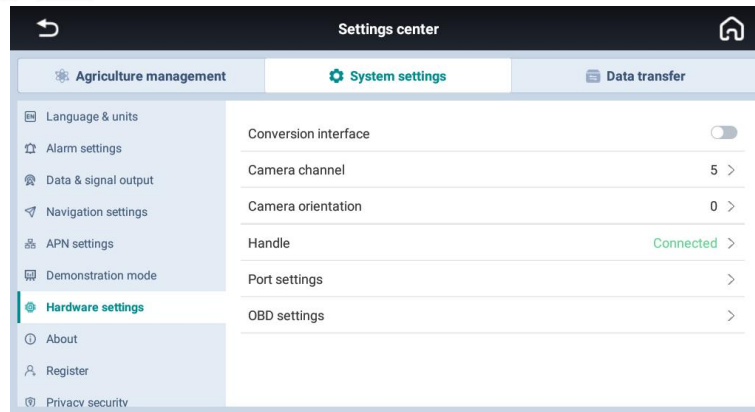
2. Currently it is available to customize the [RZ] and [thematic switch] these two features.
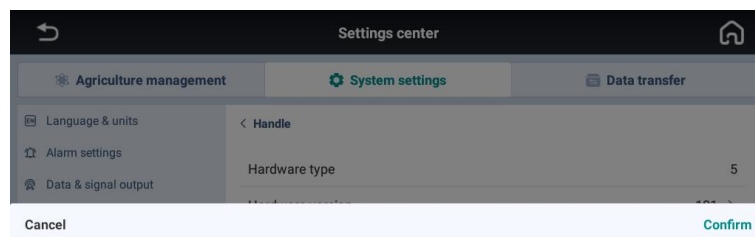
6.14 ISOBUS UT & TC-SC

1. Go to [Implement setting -> ISOBUS mode switch] to enable ISOBUS.
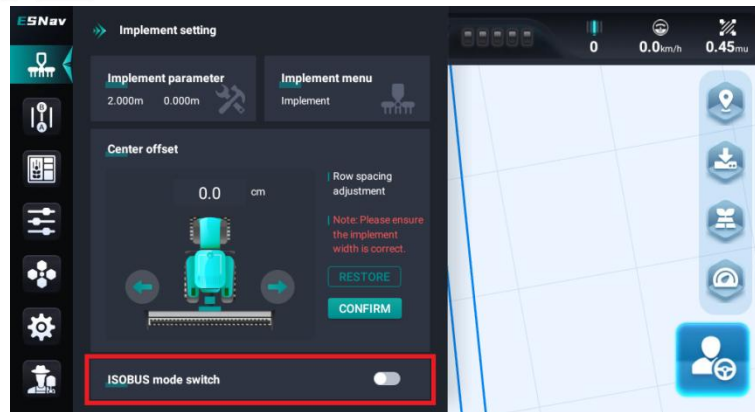
2. Go to [Implement menu] to add a new implement and select this ISOBUS implement.
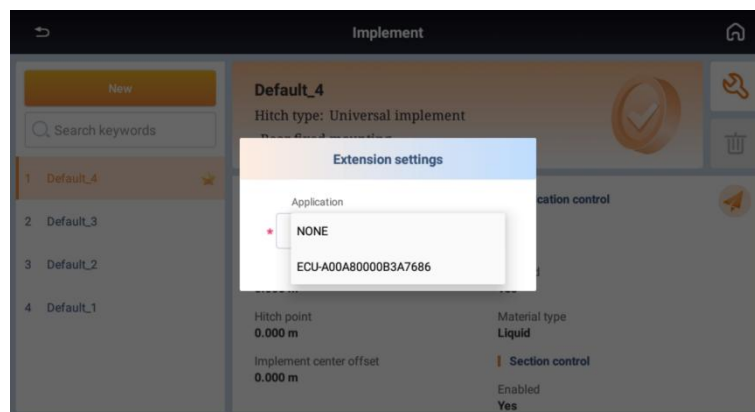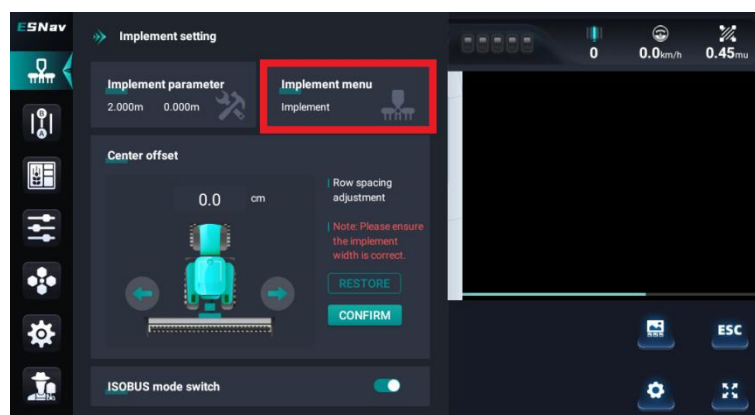
3. Enable the application control and new a application control and set the channel.

4. Give a name the select the material type and set the offset value.

5. Set the section quantities and latency, etc, finally finish the new application control.

6. Go back to the main interface, the customer can switch between AUTO and Manual for ISOBUS TC-SC.

6.15 Safety

In order to ensure the safety, currently it is available to support users to set the

maximum autopilot speed, the max speed allowed to engage the autopilot and the maximum speed allowed to enable Auto U-Turn . It is also possible to set the level to manually disengage the autopilot. Go to [Settings center -> Agricultural management -> Safety].
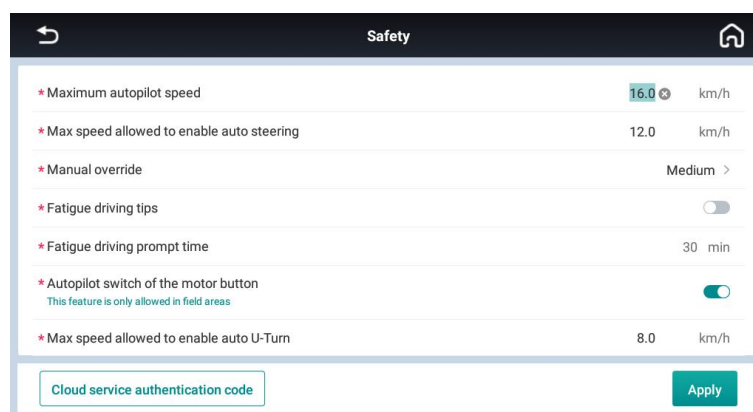
6.15.1 Maximum autopilot speed

Set the maximum autopilot speed, when the vehicle in autopilot mode, it's speed

cannot exceed the set thresholds.
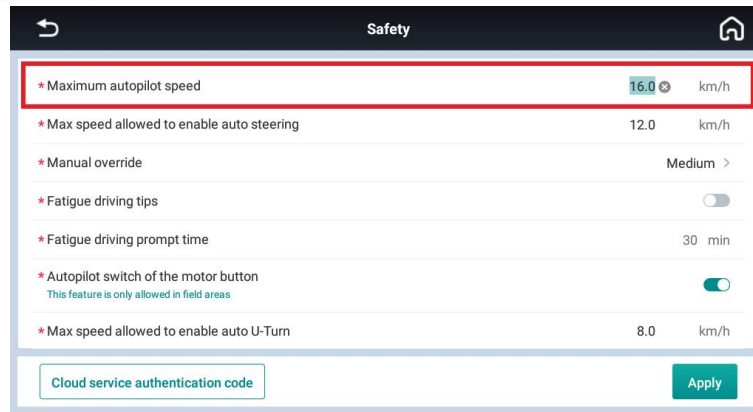
If the current speed is 2km/h below to the threshold, it will have message prompts
and audible alarms which remind users the current speed is close to max limit
and auto steering will be disengaged.

The default maximum autopilot speed is 16km/h and the configuration range is from
1km/h to infinity.
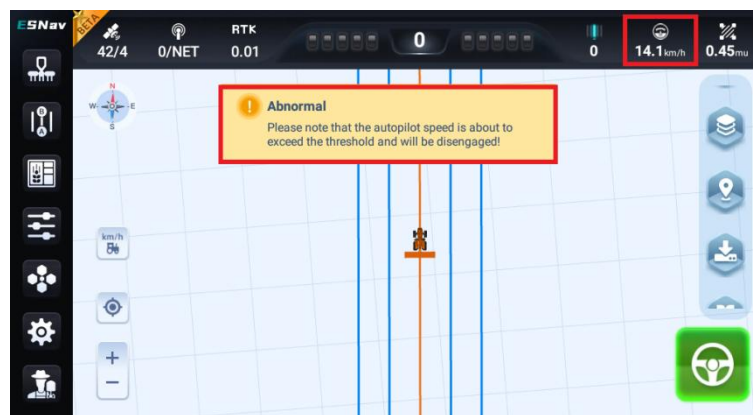
If the current speed exceeds the operators set, the auto steering will be disengaged.

6.15.2 Maximum speed allowed to enable auto steering mode

Set the max speed allowed to engage the autopilot, if the current speed exceeds the
threshold, it can not enter autopilot mode.

The default maximum speed allowed to enable autopilot is 12km/h and the
configuration range is from 1km/h to infinity. Also it should be less than the
maximum autopilot speed as above.
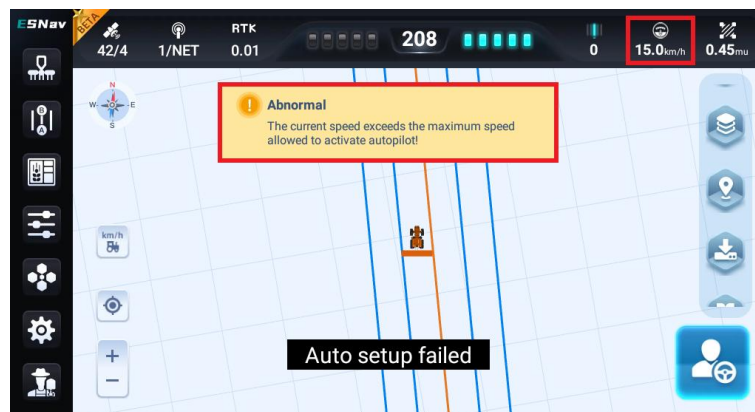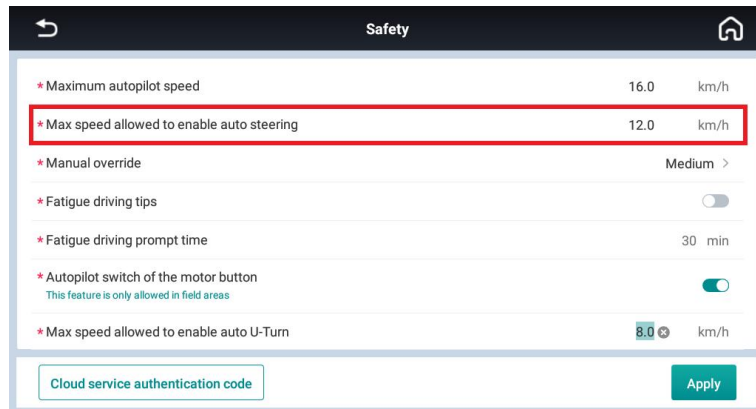
6.15.3 Manual override

Manual override function allows users to turn the steering wheel to disengage autopilot mode in an emergency. It is allowed to set the different level to manually disengage the autopilot which includes the Simple, Medium, Hard, Prohibitive four Modes
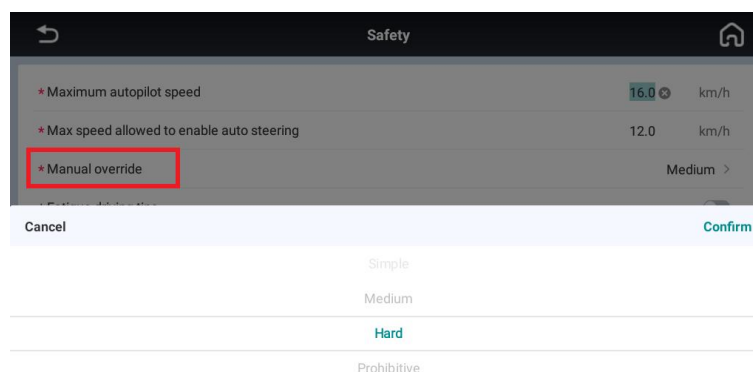
6.15.4 Fatigue driving

In order to ensure the safety, currently it is available to support users to set the fatigue driving alert and trigger time.
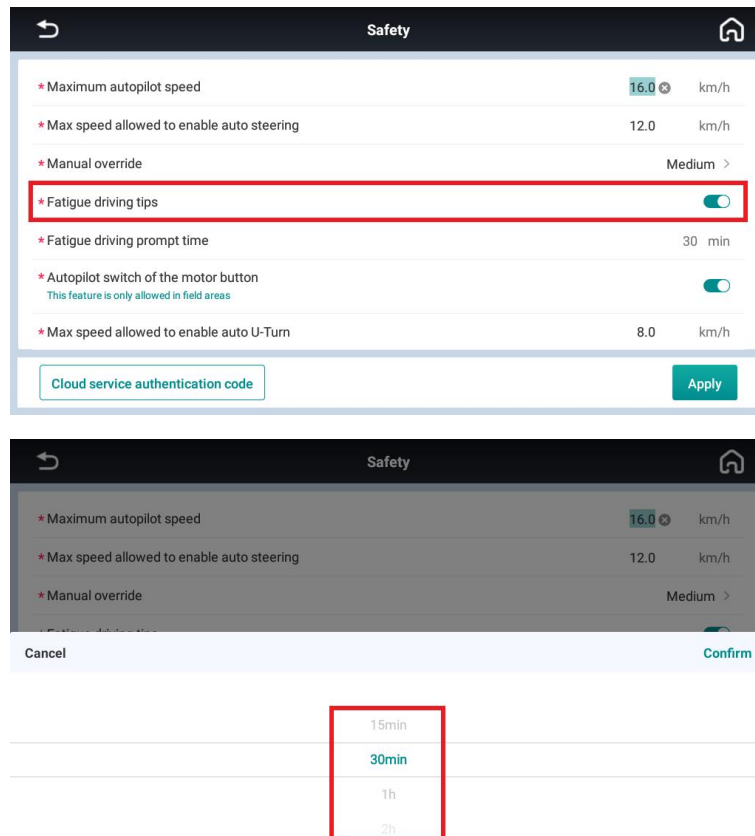
6.15.5 Autopilot switch of the motor button

Allow autopilot mode control via motor button. The default option is on and some users can turn it off in case of the safety reason.
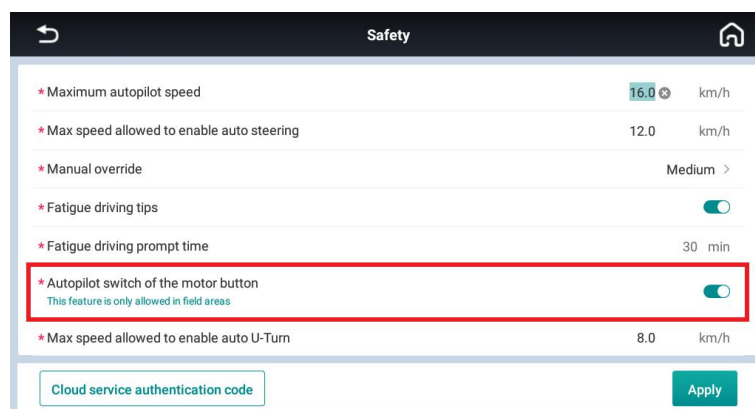
6.15.6 Max speed allowed to enable auto U-Turn

When the vehicle speed is more than the threshold, the Auto U-Turn will not be triggered.
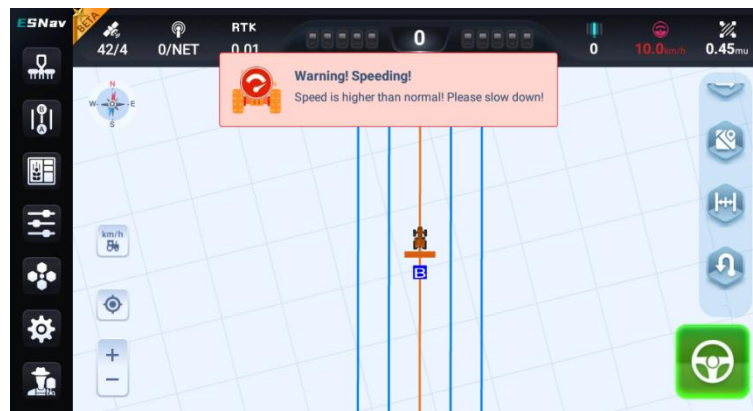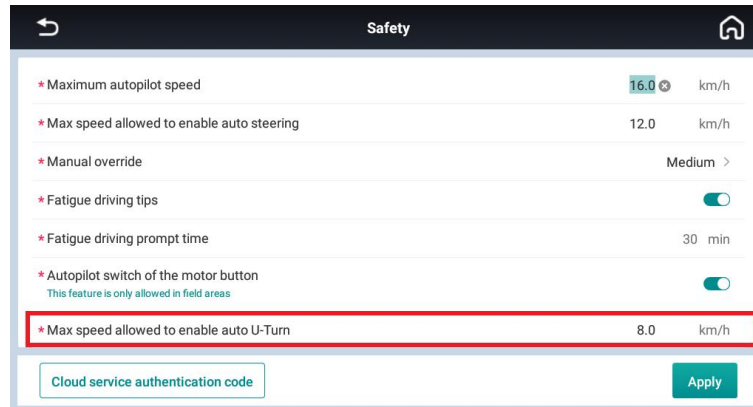
6.16 Privacy security

ESNav5.0 adds a new feature to protect different settings with the password.

1. Go to [Settings center -> System settings -> Privacy security]. It is accessible for protecting multiple items with the defined password. For example, set 123456.
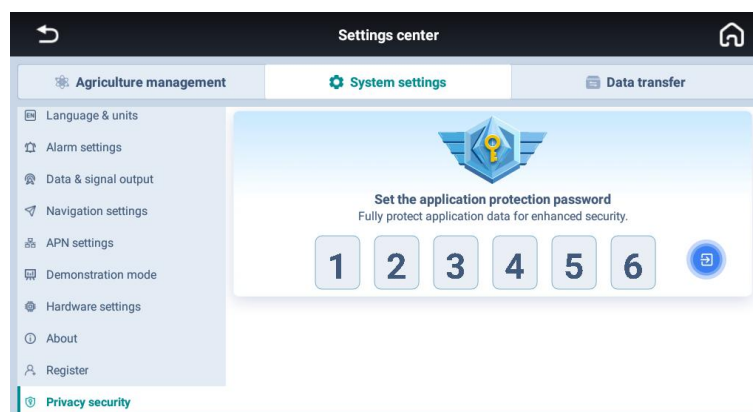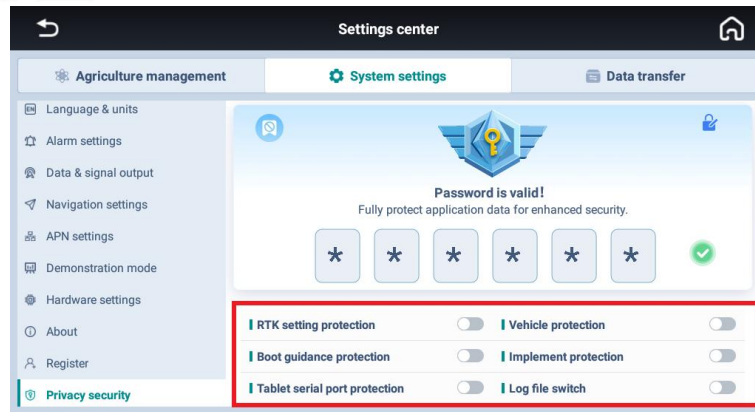
2. Also it is able to delete the password or change the password.
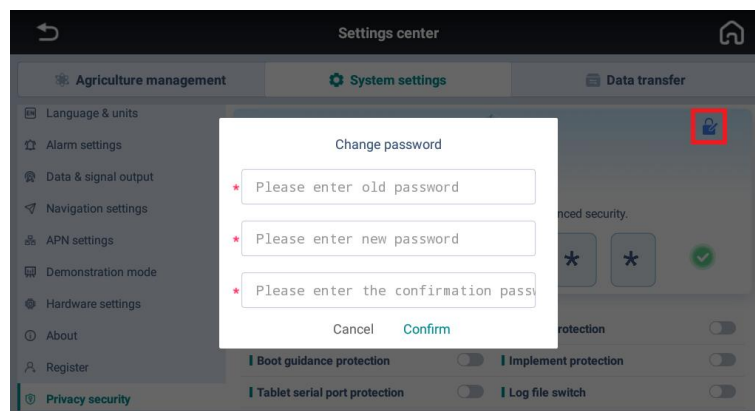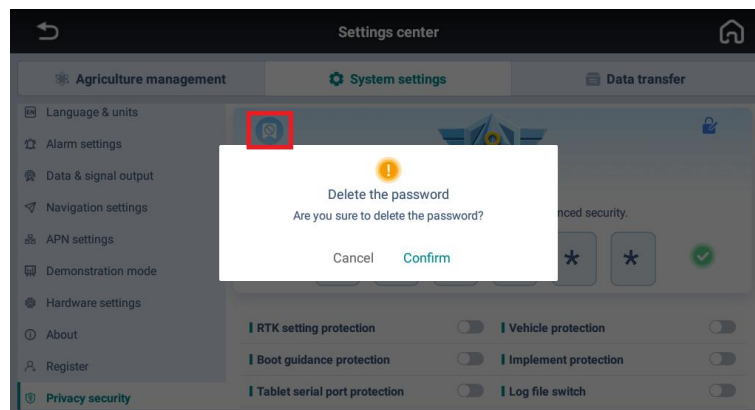
3. Once set the password for selected settings, it is necessary to enter the password when do some operations.
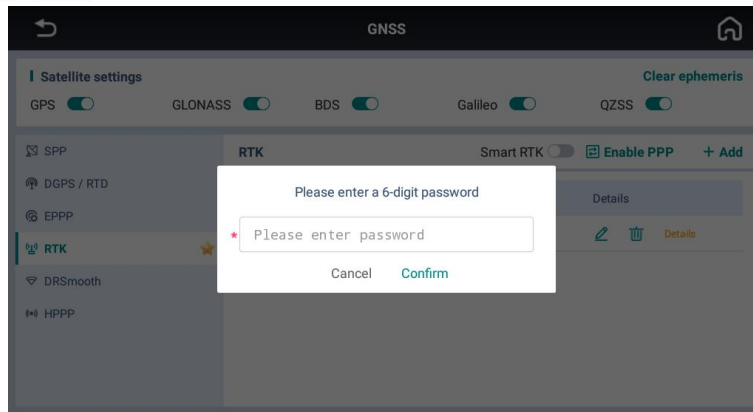
6.17 Materials

Go to [Settings center -> Agricultural management -> Materials]. Manage spraying equipment and materials on this interface.
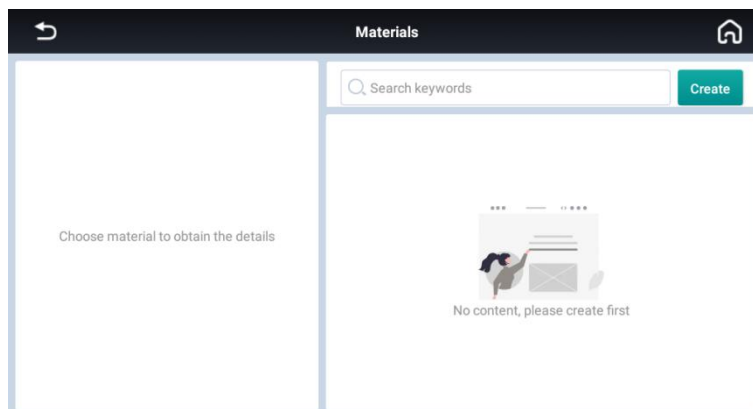
6.18 Troubleshooting

Go to [Settings center -> Agricultural management -> Troubleshooting].

When encountering a malfunction, please check the information of each module on this interface and provide it to EFIX engineers.
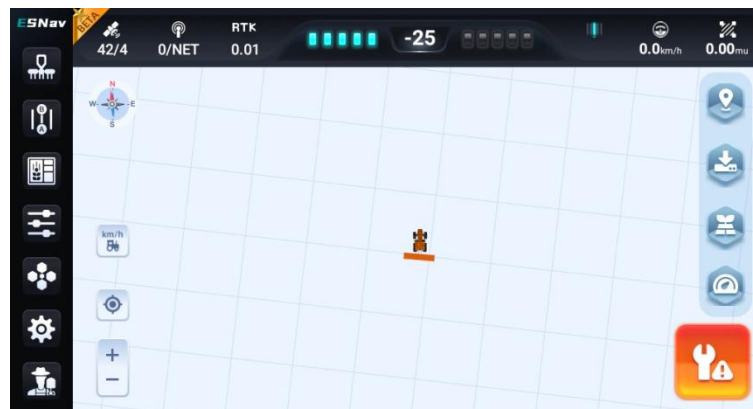
7 Maintenance

1. To ensure the normal operation and service life of the equipment, please maintain the equipment under the instruction of the manual.
2. Please do not disassemble the main components of the system. If necessary, please contact the EFIX after-sales service support@efix-geo.com.
3. Please use device under the instruction of user guide.
4. Regularly check each screw, wiring harness and connector of the system, such as controller fixing screws, angle sensor fixing screws, data cable connectors, etc.
5. Keep the motor clean.
6. Maintain the environment in which the motor is used. Please do not wrap materials such as cotton cloth and dustproof film on the motor.
7. Before starting the work, check whether the transmission device is flexible; whether the concentricity of the coupling is standard; the flexibility of the gear transmission.

FCC Warning:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

•Reorient or relocate the receiving antenna.
•Increase the separation between the equipment and receiver.
•Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
•Consult the dealer or an experienced radio/TV technician for help.
Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
The device has been evaluated to meet general RF exposure requirement.
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
This equipment should be installed and operated with minimum distance 40cm between the radiator & your body.

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