NAV Drone Mobile App v. 4.5.3

User Manual

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1 Preface

1.1 Intended audience

This User Manual is intended for all drone operators, pilots and crew members who want to plan and manage drone operations in the NAV Drone Mobile App. With the option to Explore without account, the intended audience is anyone who would like to visualize airspace information and understand the rules and regulations applicable to a location of their choice.

This application is part of the NAV Drone Remotely Piloted Aircraft Systems (RPAS) Traffic Management system.

Basic familiarity with your Apple iOS/Google Android mobile device including its operating system software are the only prerequisites for understanding the information presented in this User Manual.

1.2 Supported software

Supported mobile device operating systems:

- Android (three most recent versions)
- Apple (three most recent versions)

1.3 Disclaimer

- Illustrations shown in this User Manual may differ from the actual product.
- In some cases, there is more than one way to perform an action in the application. In the context of this User Manual not all alternatives are being described.
- The product features available to you depend on your configuration, as well as to your role and responsibilities. Therefore, you may not have access to all functionalities described in this User Manual.

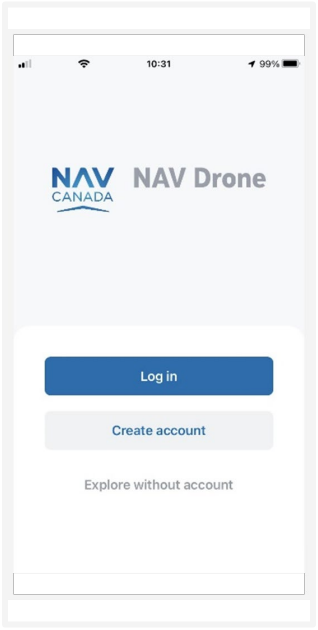
2 Install and launch the app

2.1 Install the NAV Drone Mobile App

Install the NAV Drone Mobile App from Play Store for Android or App Store for iOS (search term *NAV CANADA* or *NAV Drone*) on your mobile device. You can also find links to the NAV Drone Mobile app at https://www.navcanada.ca/navdrone.

2.2 Launch the NAV Drone Mobile App

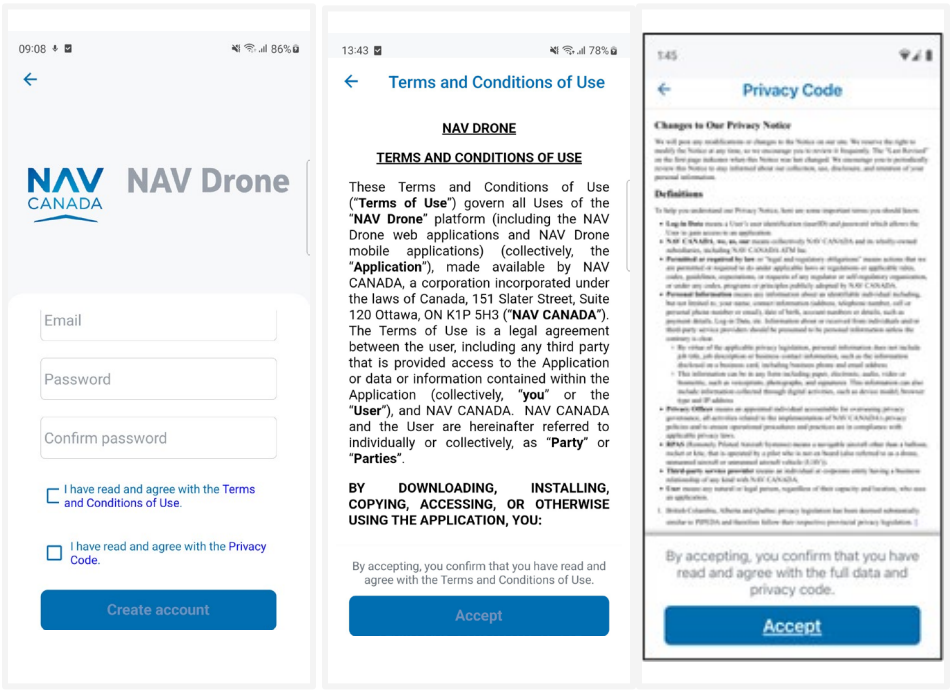
1. Tap the NAV Drone Mobile App icon to launch the app.
2. In the log in screen:



- Tap *Log in* if you are already registered. In case you have an account for the Unifly Operator Web App, you can also use it in the NAV Drone Mobile App. See also "Log in/Log out" on page 11.
- Tap *Create account* if you are not registered yet. See also "Create an account" on page 9.
- Tap *Explore without account* to use the app anonymously. See also "Explore without account" on page 77.

3 Create an account

1. Tap *Create an account* to go to the registration page.
2. Complete the registration form. A valid email address is required, and the system only supports ASCII characters.
3. Read *Terms & Conditions* and *Privacy Code*. Scroll down to the end of each document to activate the *Accept* button and tap it.



4. Tap the *Create account* button that was activate after completing the previous step.
5. Check your mailbox and confirm your registration by following the instructions in the email message sent to you. Make sure to check your spam folder if you don't find the confirmation email in your standard incoming email folder.
6. You receive a confirmation that your account is now ready for use.

4 Log in/Log out

4.1 Log in

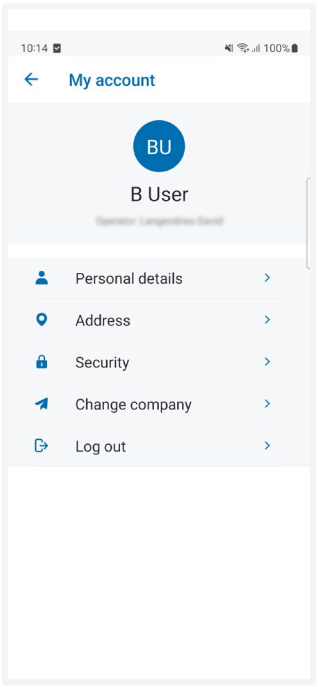
To log in, proceed as follows:

1. Tap the NAV Drone Mobile App icon to launch the app.
2. On the *Welcome* screen, tap the *Log in* button to go to the *Log in* screen.
3. Enter the email address used for registration and your password, and tap the *Log in* button to continue.

When logging in to the NAV Drone Mobile App for the first time, make sure to complete your user profile (see also "My account" on page 68) and to configure your user settings (see also "User settings" on page 72). If the multi-factor authentication is enabled in your settings, you will be prompted to enter the SMS code sent to your mobile number.

4.2 Log out

1. Tap ☰ to go to the *More* screen.
2. Tap on *My account*.
3. tap *Log out*.

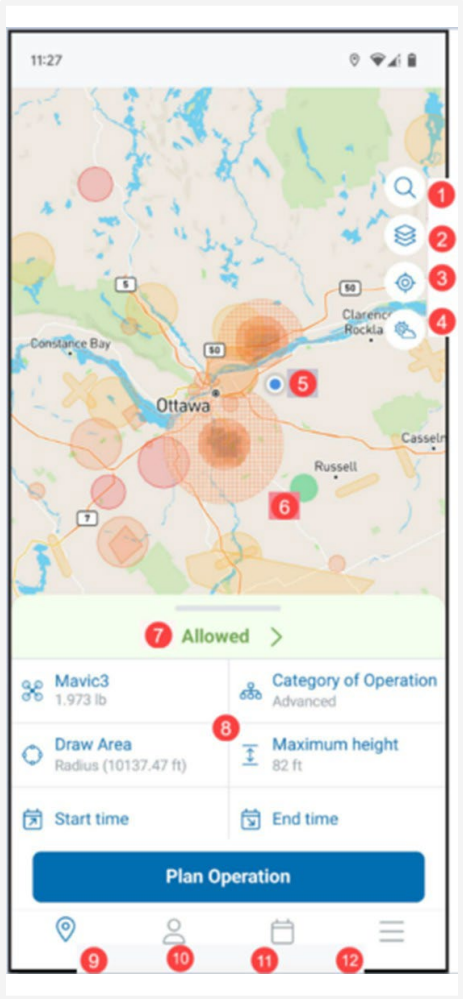


5 The Map screen

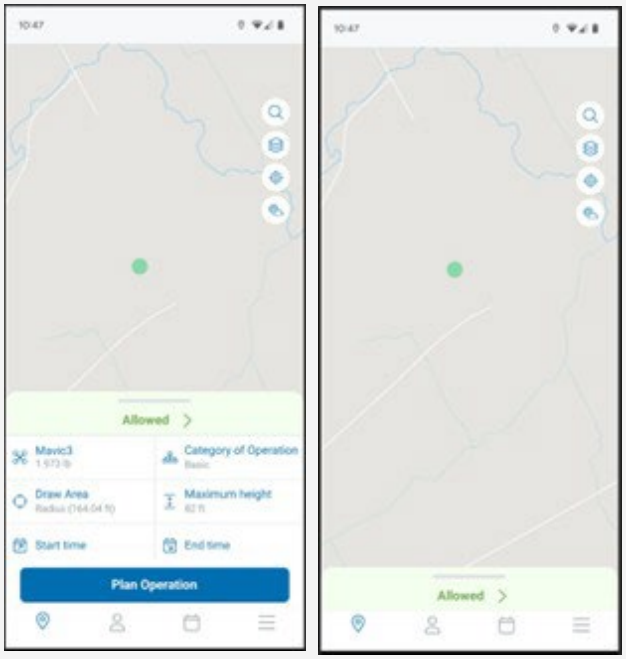
5.1 Screen elements

When you log in, the app's *Map* screen is displayed.

The *map* screen includes following user interface elements:

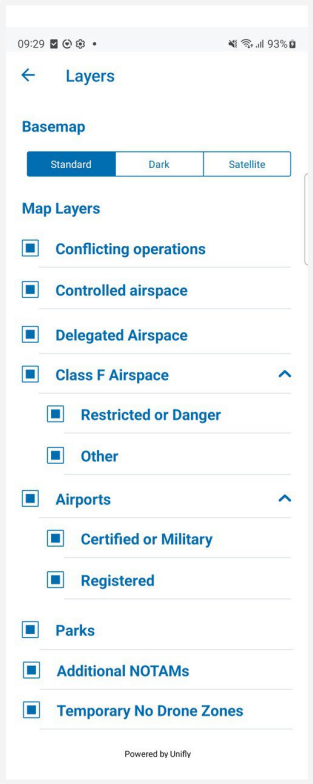


N°	Description
1	Tap here to go to the *Search* screen and enter a location, such as an address or a city. Tapping on an entry in the search results centres and zooms the map on the selection location, which will be used in the operation validation process. You can also tap a location on the map to mark that location to be used.
2	Tap here to go to the *Layers* screen where you can select your preferred *Basemap* and *Map layers*.
3	Tap here to centre and zoom the map on the current GPS position of your mobile device. Move the map by dragging it around and zoom in/out by stretching/pinching.
4	Tap here to display the current temperature, the chance of precipitation, the wind

N°	Description
	direction, and the K_P index at the operation validation position.
5	The blue dot indicates the current GPS position of your mobile device on the map.
6	The transparent colour coded circle represents the currently selected operational area. The colour indicates the result of the *Validation* process.
7	*Validation status* indicator • Tap on the status text to display the validation of your operation. • Swipe down/up to hide/show the parameter fields. 
8	Parameter fields
9	Tap here to go to the *Map* screen where you can plan your operation.
10	Tap here to go to he *Profile* screen where you can manage your *Gear* and *Flights* logbook.
11	Tap here to go to the *All operations* screen.
12	Tap here to go the *More* screen where you can manage your account and settings and get access to a number of additional features.

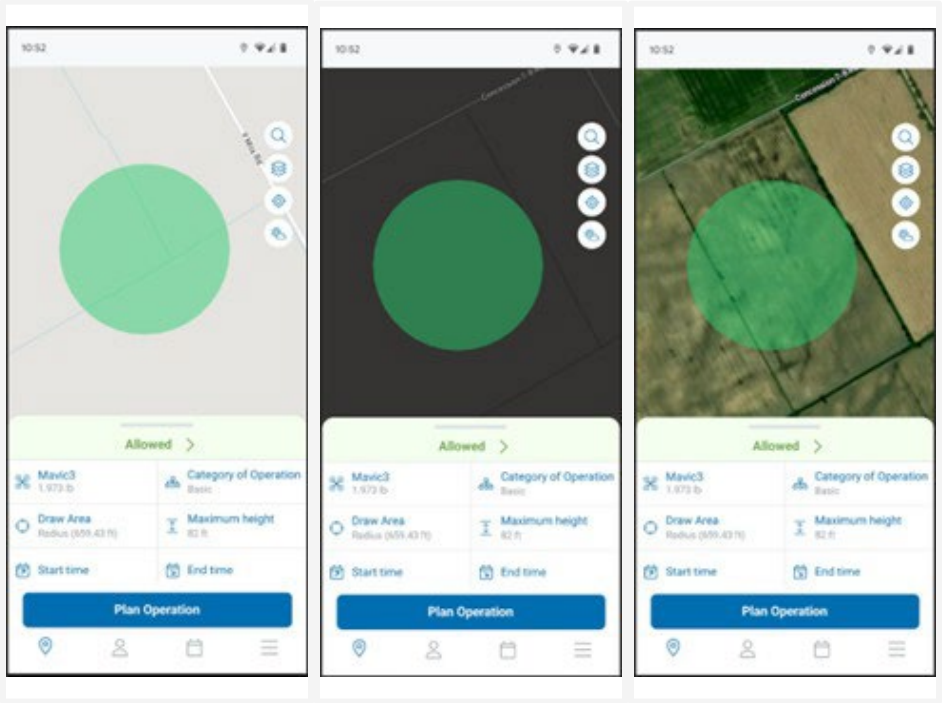
5.2 Layers

Tap on the *Map* screen to go to the *Layers* screen. In this screen you can select a basemap for the *Map* screen and select/deselect map layers. When done, close the *Layers* screen by tapping at the top left of the screen.



5.2.1 Basemap

1. Go to the *Basemap* section of the *Layers* screen.
2. Select a mode by tapping on it:
    - Standard
    - Dark
    - Satellite



5.2.2 Hide/display Layers

The map presented in the NAV Drone Mobile App is created by displaying a number of map layers on top of the basemap (background map). The basemap is always displayed, but the map layers can be hidden or displayed.

You can hide or display each map layer in the list.

1. Go to the *Map layers* section of the *Layers* screen.
2. Select/deselect the map layer(s) to display by tapping on the corresponding checkbox in front of the layer's name.

5.3 Display airspace information

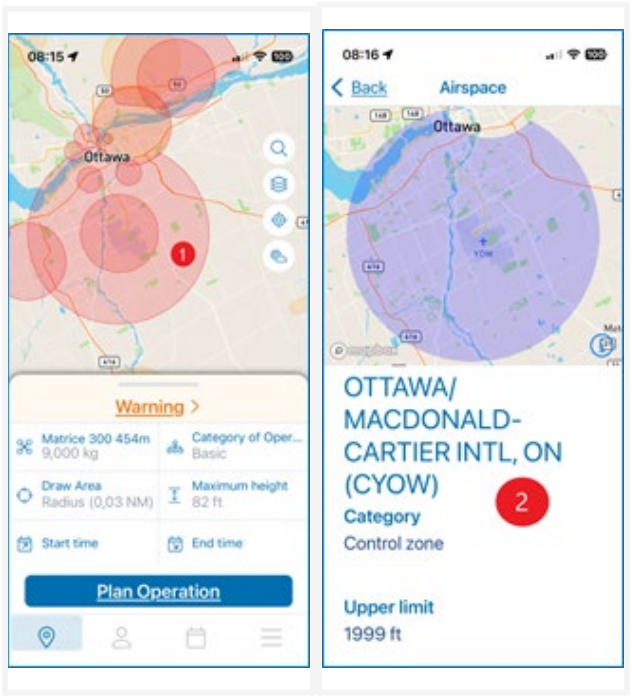
Information about geozones is displayed by tapping and holding on a geozone on the *Map* screen.

Two scenarios are possible, as described below.

5.3.1 Location covered by one visible geozone

If the selected location is covered by only one visible geozone:

1. Tap and hold on a location.
2. The detailed information of the geozone covering that location appears.

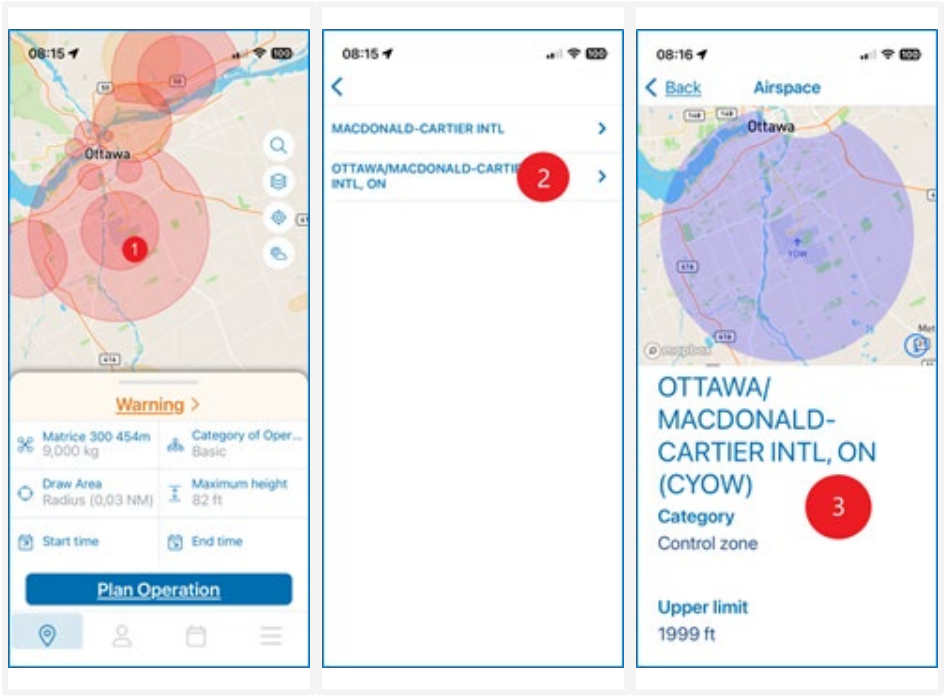


3. Close the new screen by tapping ‹ at the top left of the screen.

5.3.2 Location covered by multiple visible geozones

If the selected location is covered by multiple visible geozones:

1. Tap and hold on a location.
2. A list of the geozones covering that location is displayed. Tap on any of the zones.
3. The detailed information of that zone appears.



4. Close the new screen by tapping ‹ at the top left of the screen.

6 Plan an operation

6.1 General

Planning a new operation consists of five main steps:

1. Planning the operation, including the creation of an operational area and the definition of the operation parameters.
2. Validating the operation against the applicable rules and regulations.
3. Saving the operation as Draft.
4. Publishing the operation.
5. Managing the operation's tasks, to receive the permissions required to conduct the operation, when applicable.

To be able to plan and perform drone operations you need to:

- link a verified mobile number to your account. See "My account" on page 68.
- add at least one drone to your profile. See "Add drone" on page 57.

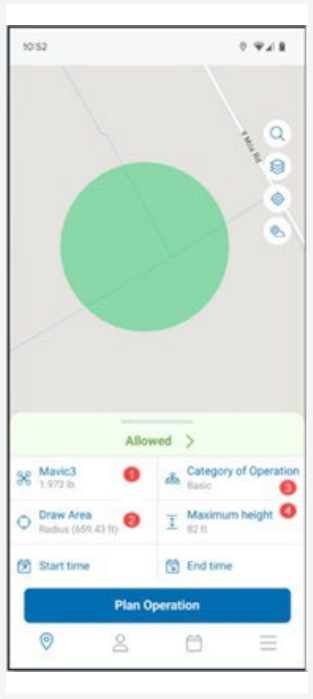
6.2 Plan operation

Start from the *Map* screen.

There are limits to the size, duration of an operation and the time period you can plan an operation in advance. The NAV Drone Mobile App will prevent you from publishing an operation that exceeds these limits. See also "Operation constraints" on page 79.

6.2.1 Define parameters

Complete the operation parameters fields.



1. Tap here to select the drone you will use for the operation.
2. Tap here to define the operation *Start and End time*. Tap *Done* when finished.
3. Select the *Category* of your operation, based on your certification level (Advanced, Basic or Micro Drone). It is needed for proper validation by the app and the category you selected could affect the outcome of the validation process.
4. Tap here and move the slider or use the + and - buttons to define the *Maximum height* you will be flying at. Tap *Save* when finished.

6.2.2 Define operational area

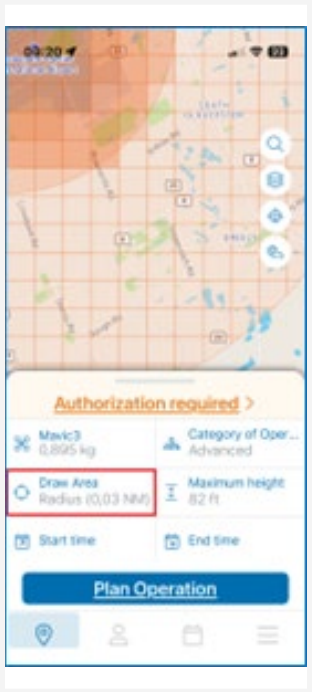
Define the operational area in which you will be flying. Select one of the three available geometries:

- Cylindrical area
- Polygon area
- Path-based area

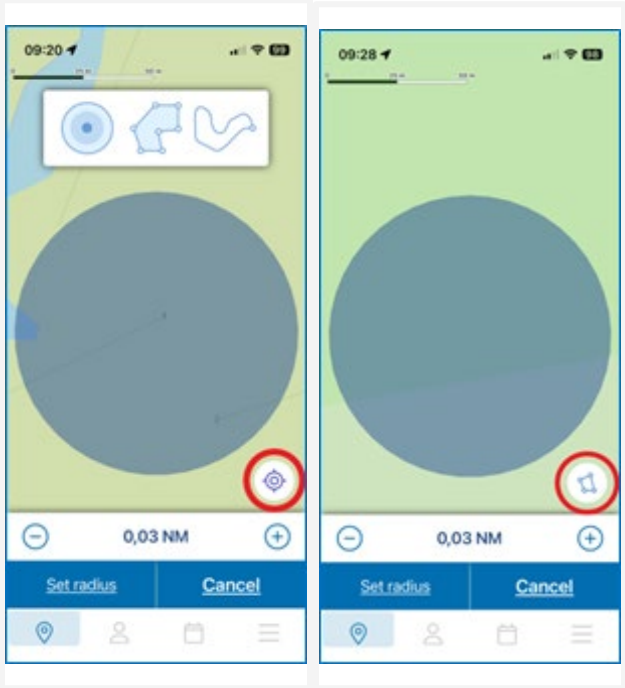
6.2.2.1 Cylindrical area

1. In the *Map* screen, select a location for the centre of the cylindrical area either by using the search button or by tapping on the map.

2. The cylindrical operational area is the default geometry option displayed. Click on the *Radius* field.



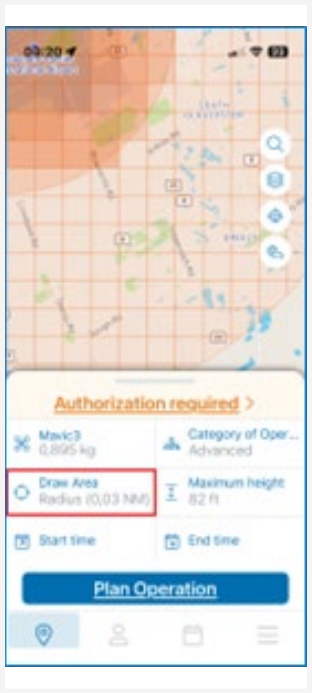
3. If necessary, change the maximum flight radius from its current value by pinching/stretching the blue area circle or by tapping the + and - icons. In case you want to zoom out while drawing or want to hide the geometry section, tap . To show the geometry section again, tap .



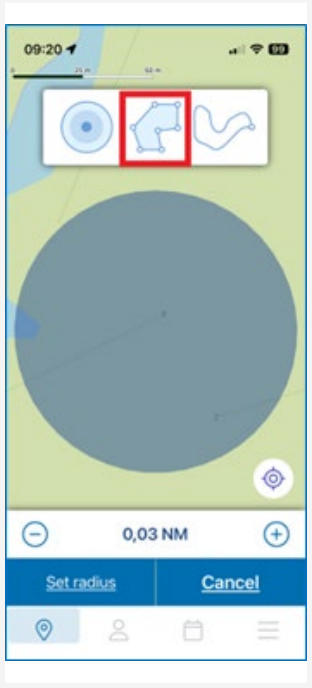
4. Tap *Set radius* to save you changes or *Cancel* to abort the action.

6.2.2.2 Polygonal area

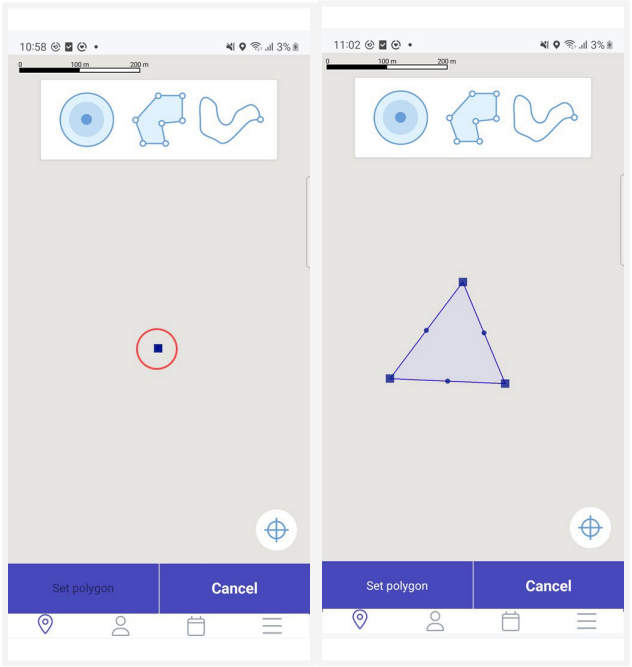
1. In the *Map* screen, select a location by using the search button or by tapping on the map.
2. The cylindrical operational area is the default geometry option displayed. Tap on the *Radius* field.



3. In the geometry section, tap the *Polygon* button.



4. On the map, select a location for the starting vertex (the corner point between two edges) and drag this first point to create the second vertex. Add new segments by dragging a shape handle (the smaller point in the middle of a segment). In case you want to zoom out while drawing or want to hide the geometry section, tap . To show the geometry section again, tap .



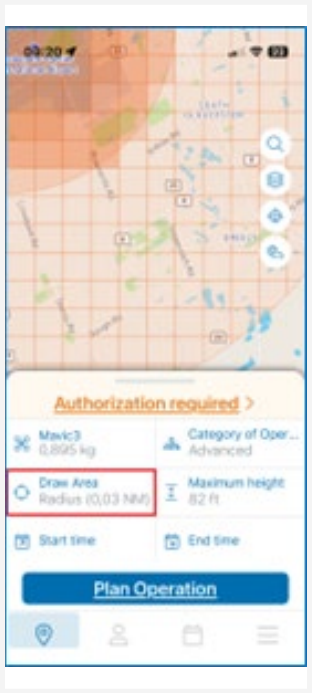
5. To modify the flight zone:
   - Drag any point to move it.
   - Delete a vertex by dragging and merging it with either one of the other two vertices to which it is connected.
6. Tap *Set Polygon* to save you changes or *Cancel* to abort the action.

You can also draw a polygon using your finger. The shape is transformed into a series of segments that you can fine-tune as described above.

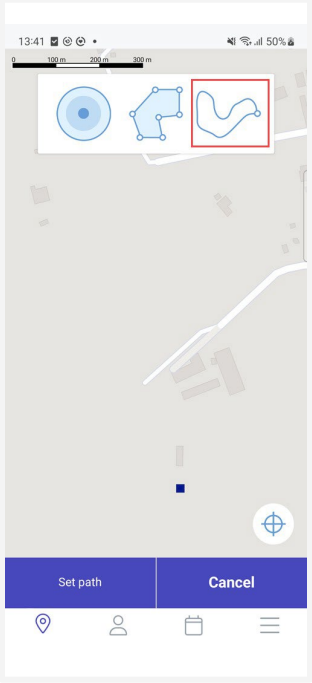
Self-intersecting polygons are not supported and will generate an error message.

6.2.2.3 Path-based area

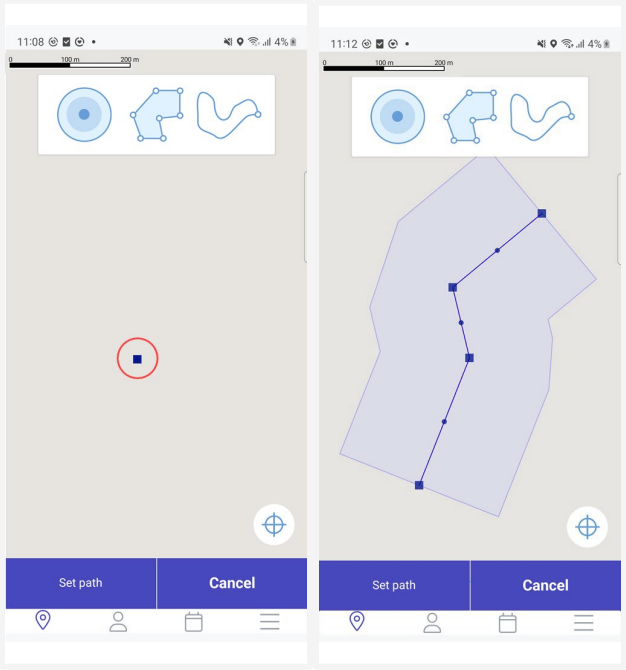
1. In the *Map* screen, select a location by using the search button or by tapping on the map.
2. The cylindrical operational area is the default geometry option displayed. Tap on the *Radius* field.



3. In the geometry section, tap the *Path* button.



4. On the map, select a location as the starting point and drag this first point to create the end point. Add new segments by dragging a shape handle (the smaller point in the middle of a segment). In case you want to zoom out while drawing or want to hide the geometry section, tap . To show the geometry section again, tap .



5. To modify the flight zone:
   - Drag any point to move it.
   - Delete a vertex by dragging and merging it with either one of the other two vertices to which it is connected.
6. Tap *Set Path* to save you changes or *Cancel* to abort the action.

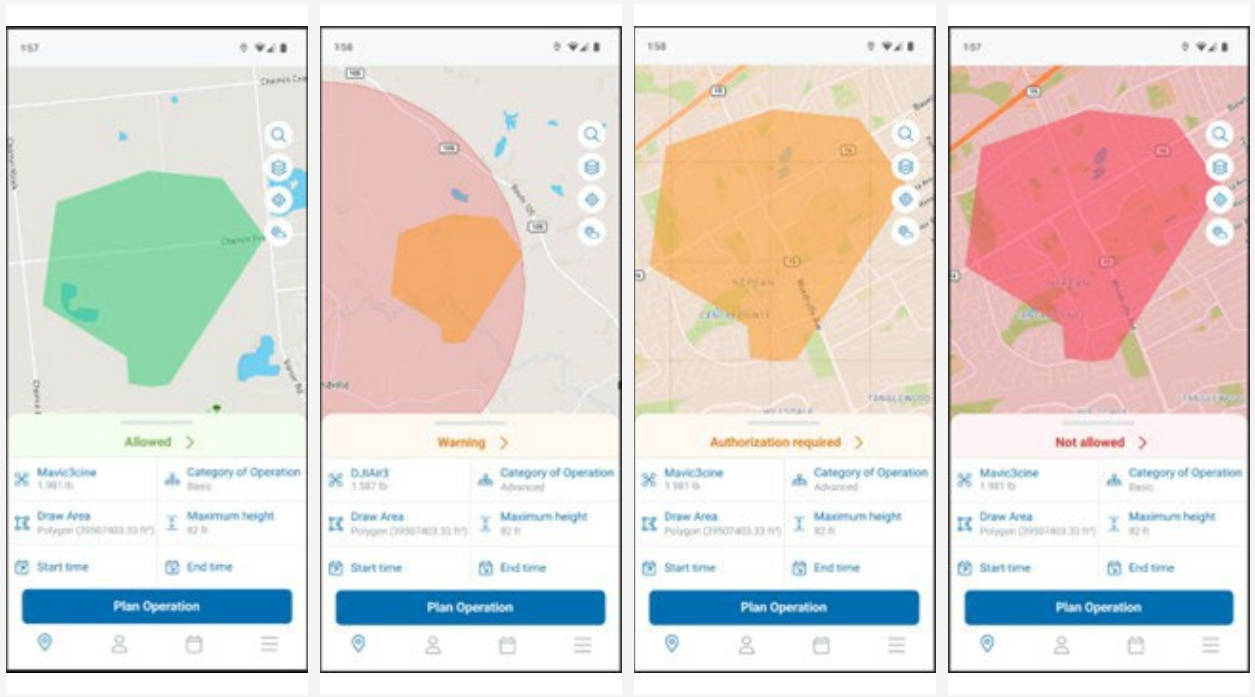
> You can also draw a flight path using your finger. The shape is transformed into a series of segments that you can fine-tune as described above.

6.3 Validate operation

Once the operational area is drawn and the operation parameters have been selected, the operation is validated by the NAV Drone Mobile App. The validation consists in verifying that the operation, as defined by its area and parameters, complies with applicable rules and regulations.

6.3.1 Validation status

The validation status indicator shows the overall validation result for the operation:

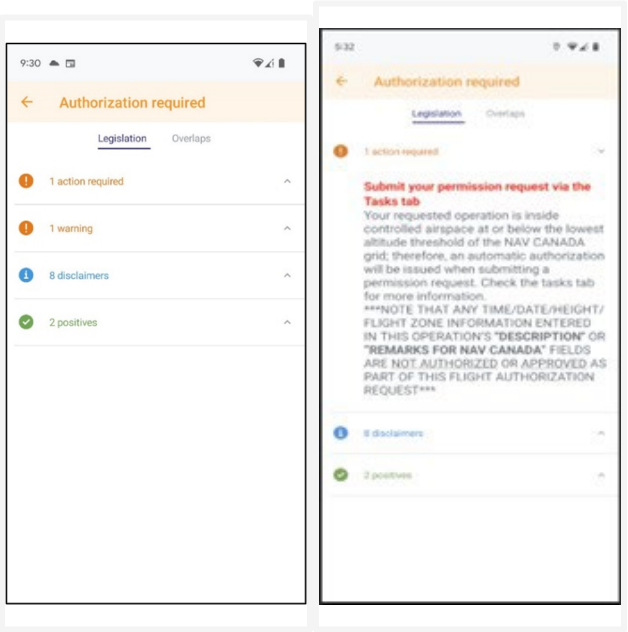


Following statuses are used:

- The operation is allowed (green colour code) with disclaimers.
- The operation is not allowed (red colour code).
- The operation comes with warnings or actions required (orange colour code).

6.3.2 Validation details

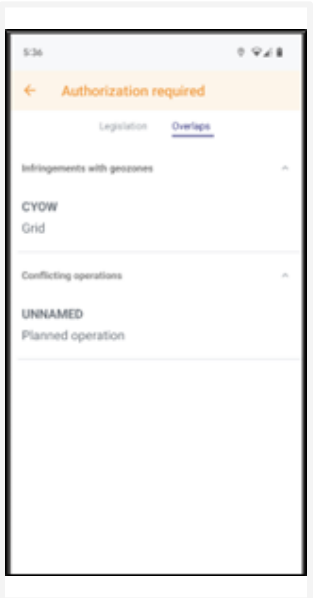
1. Tap on the validation status indicator to display the validation details screen.
2. Tap *Legislation* to display the validation details grouped in categories that can be expanded (^) or collapsed (v).



Following categories are used:

- Rules the operation is complying with (green).
- Disclaimers you should keep in mind when conducting the operation (blue).
- Required actions you must take to be able to conduct the operation (orange)
- Rules the operation is not complying with (red).

3. Tap *Overlaps* to display possible infringements with geozones or conflicting operations.



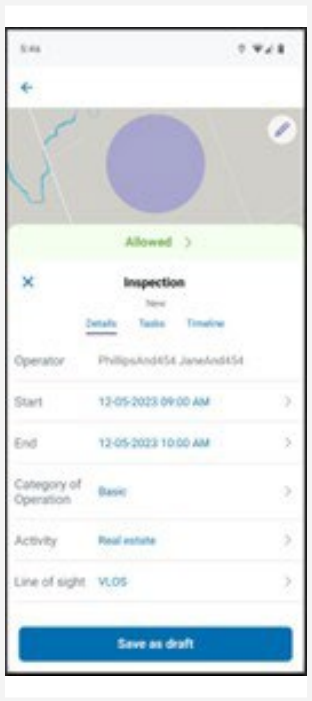
Check all validation information provided by scrolling through the full list and reading all validation details.

If necessary, adapt the operation flight zone and/or parameters until you get the desired validation result before proceeding.

6.4 Save operation as draft

Once the operation has been validated, you can save it by proceeding as follows:

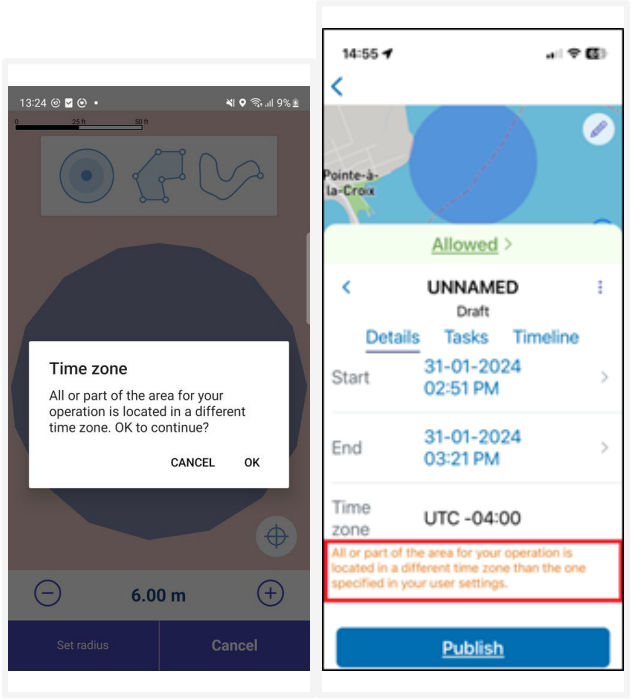
1. Tap *Plan operation* at the bottom of the *Map* screen to go to the Operation details screen.



2. Complete all the fields in the *Details* screen (if not completed already in the operation parameters).
    - Operation name
    - Operator
    - Start date and time
    - End date and time
    - Certification level
    - Activity
    - Security group (If available in your configuration, see "Disclaimer" on page 6)
    - Line of sight
    - Maximum height
    - Description
    - Drone
    - Pilot
3. Tap *Save as draft* at the bottom of the screen.

Every change to a draft operation will trigger a re-validation of the operation.

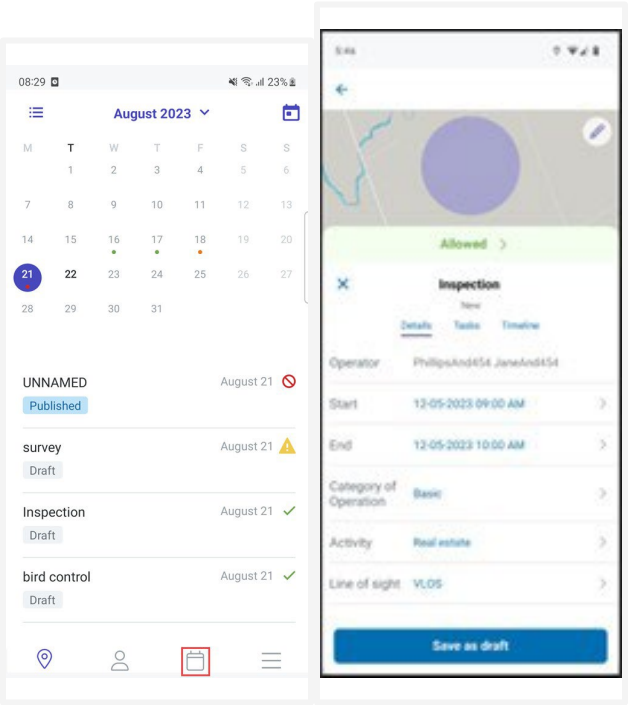
When drawing an operation in a time zone other than the one defined in your user settings, a dialog box provides a warning. In the operation details, a warning message indicates whether the operation is located in a time zone (expressed in Coordinated Universal Time or UTC) other than the one specified in your user settings.



6.5 The Operation details screen

6.5.1 Features

You access the *Operation details* screen automatically after saving your operation as a draft. Alternatively, you can access it by tapping a specific operation in the *All operations* screen.

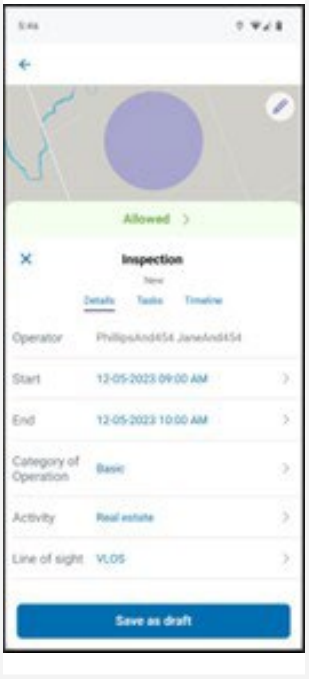


In the Operation details screen you can:

- display your operation parameters.
- edit your operation parameters and operational area (only for operations in status *Draft*).
- publish an operation.
- manage tasks and permission requests.
- copy, delete or cancel an operation, depending on its current status.
- log a flight.
- view flight events on the *Timeline*.
- access the *Flight report*

6.5.2 Details

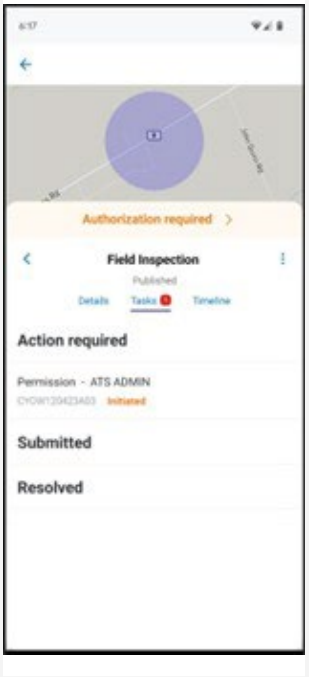
The *Details* tab displays the operation parameters, some of which you added in the *Map* screen, others which you added before saving the operation as a draft. For details on these parameters see "Save operation as draft" on page 28.



As long as the operation is in *Draft* status you are able to modify these parameters.

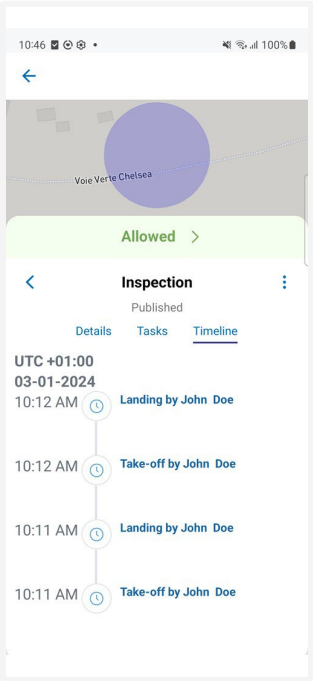
6.5.3 Tasks

If you need to execute tasks, such as Permission requests, in order to be authorised to perform your operation you can display and manage those in the *Tasks* tab. See "Manage tasks and permission requests" on page 41.



6.5.4 Timeline

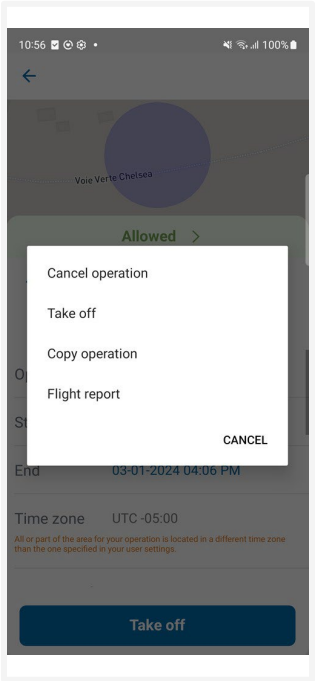
The *Timeline* tab lists take-off and landing events.



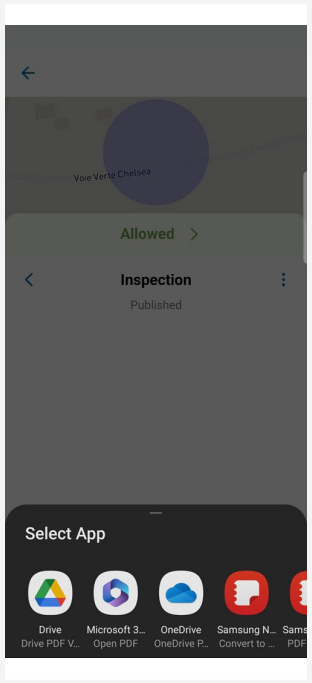
6.5.5 Flight report

As soon as your operation has been approved, a flight report becomes available.

1. Tap the *Dots* menu in the *Operation details* screen and select *Flight report*.



2. If required, select the appropriate application to open the report.

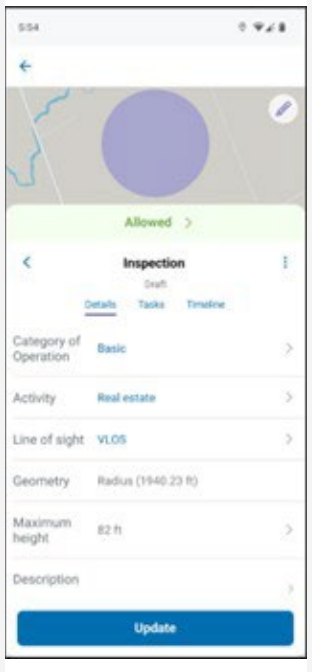


3. The *Flight report* is now available for downloading/printing.

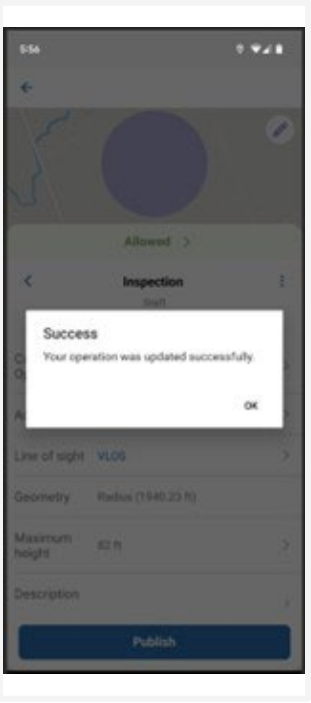
6.6 Modify a draft operation

1. If you just saved the operation as a draft and are already in the *Operation details*, continue to step 2. If not, tap to display a list of your scheduled operations and open the *Operation details* screen of the operation you want to modify.
2. If necessary, tap and select *Edit geometry* to modify the operational area.

3. Modify and set the area accordingly. See "Define operational area" on page 20.
4. If necessary, change one or more operational parameters and tap *Update*.



5. Tap *Ok*.



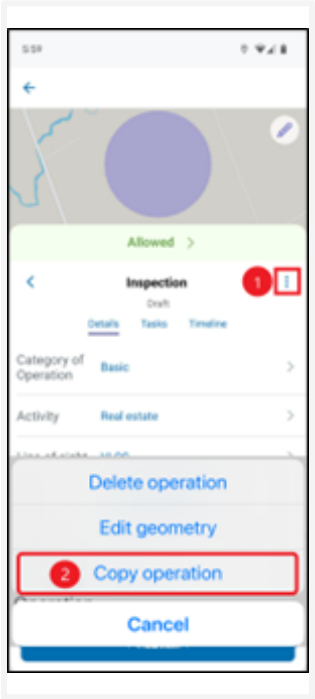
Every change to a draft operation will trigger a re-validation of the operation.

6.7 Copy, cancel or delete an operation

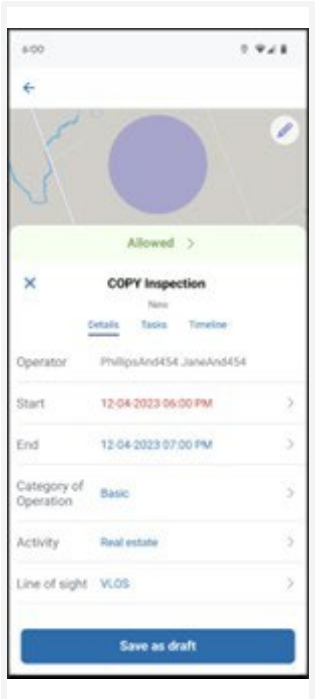
6.7.1 Copy operation

You can only copy operations with status *Draft* or *Published*.

1. Tap ⋮ and select *Copy operation*.



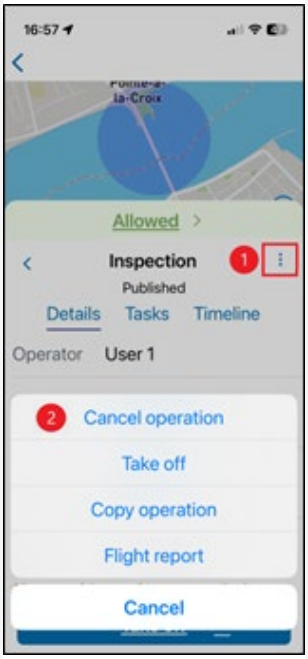
2. A new operation appears, including all data from the original. A prefix in front of the name indicates it is a copy. You can now modify parameters and operational area if necessary and save the new operation as a draft. See "Save operation as draft" on page 28.



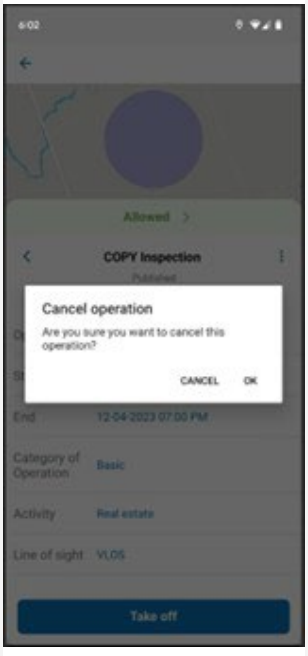
6.7.2 Cancel operation

You can only cancel operations with status *Published*.

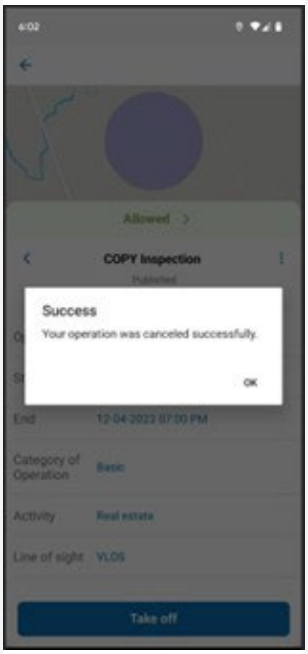
1. Tap ⋮ and select *Cancel*.



2. Tap *Ok*.



3. Tap *Ok*.

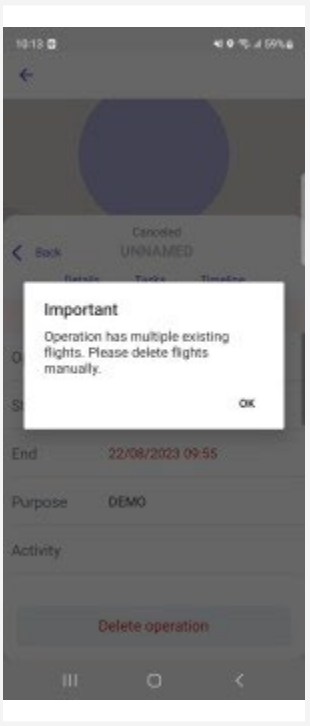


6.7.3 Delete operation

You can only delete operations with status *Draft* or *Cancelled*.

1. Tap *Delete operation*.

2. In the event that an operation would have involved several takeoffs and landings, if the operation still has flights attached to it, a warning message appears. Tap *Ok* and delete the flights in your *Logbook* before repeating step 1 of this procedure. See "Delete flight" on page 75.



3. The operation is no longer available in your list of operations.

6.8 Publish operation

Your operation has been saved but is not ready for take-off. To finalize your draft operation, you must publish the operation by tapping *Publish* at the bottom of the screen.

If you publish the operation you can no longer edit it.

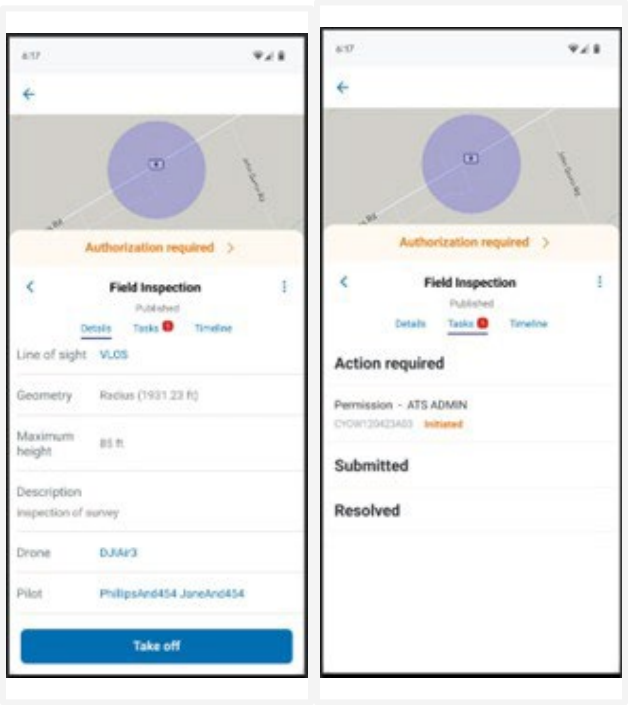
If the operation requires permissions, a warning message will be displayed after publishing the operation to indicate that there are still actions required.

6.9 Manage tasks and permission requests

6.9.1 Details and tasks screen

The validation results provided in the *Details* tab indicate whether actions are required for the operation. The *Tasks* tab allows you to process the actions required.

Additionally, a red notification icon is displayed to the left of the *Tasks* tab to indicate there are actions required. The notification icon contains a number which corresponds with the number of actions outstanding.



6.9.2 Why do you need permissions?

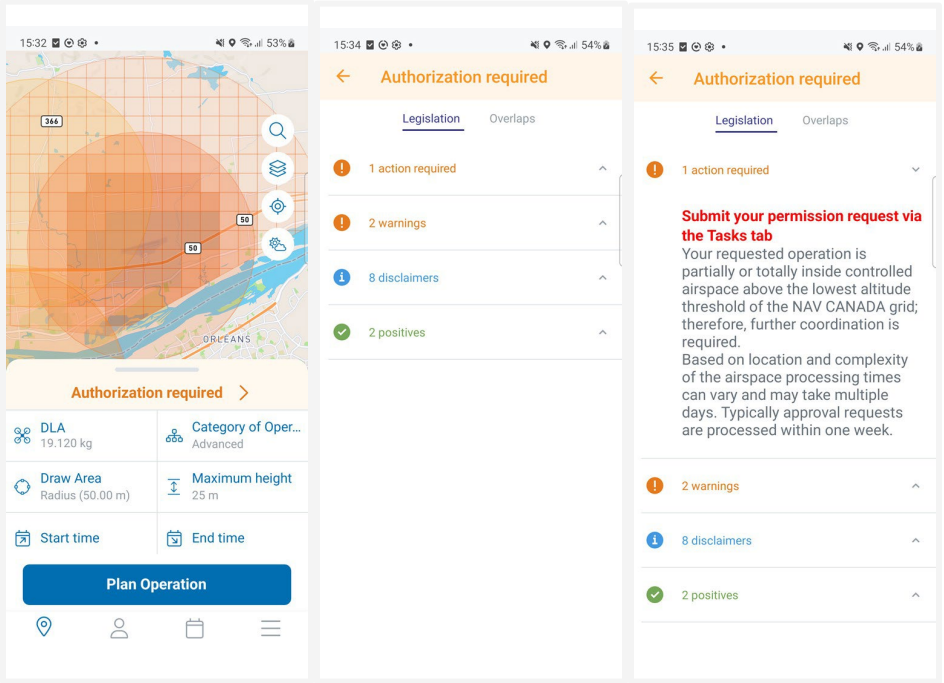
As defined in the Canadian Aviation Regulations Part IX, permissions are required to conduct Advanced operations in airspace controlled by NAV CANADA.

Permission requests are evaluated either automatically or manually:

- Auto Approval: permission requests that are automatically approved in NAV Drone
- Further coordination required: permission requests that require a review by NAV CANADA before it can be approved or rejected.

Whether a permission request is characterized as Auto Approval or Further coordination required depends on the height and location of the operation's flight zone.

When drawing an operational area for an *Advanced* operation, airspace controlled by NAV CANADA is identified on the map by a grid with a colour assigned to each cell. That colour code indicates the maximum height at which an operation's permission request can be automatically approved in NAV Drone. Above that maximum height, permission requests will require further review by NAV CANADA when submitted.



The sections below present the workflow to submit and track the status of a permission request.

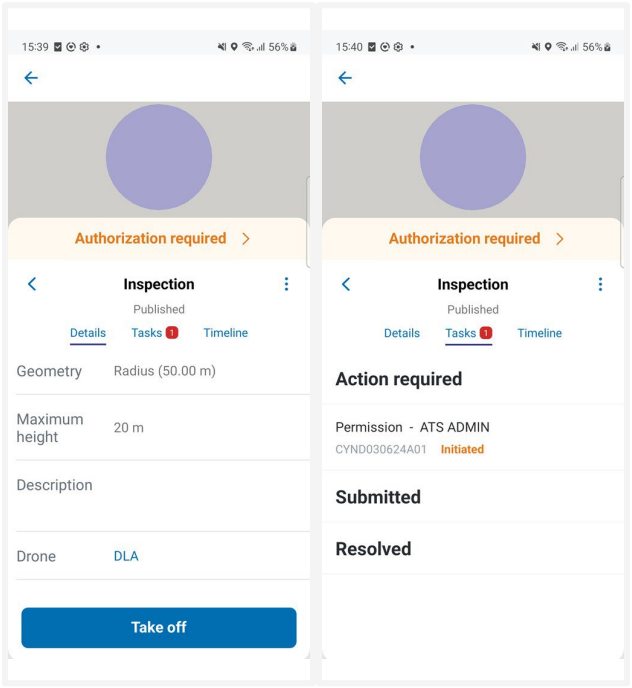
If the operation flight zone overlaps multiple NAV CANADA control zones, NAV Drone will generate a separate task (permission request) for each affected control zone in the Action Required category. Each task will need to be submitted and assessed independently.

6.9.3 Permission requests eligible for auto approval

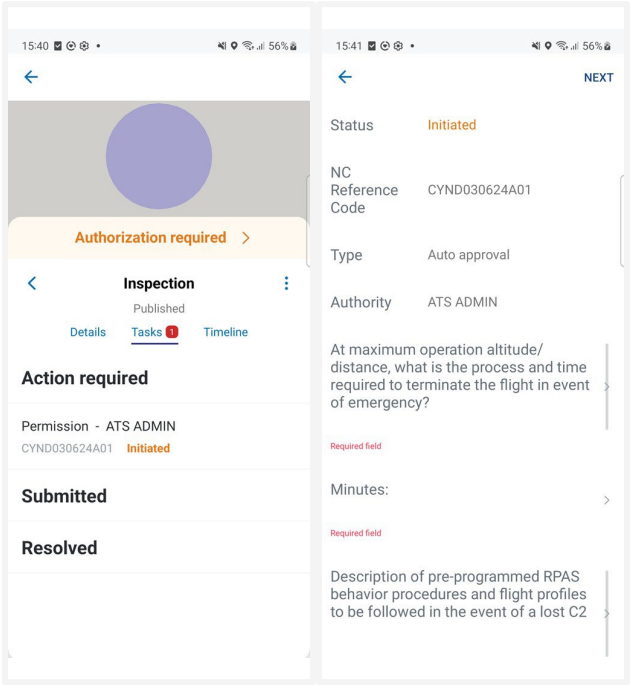
In airspace controlled by NAV CANADA, when the operation's height is at or below the Upper limit of all the grid cells that the flight zone intersects, the permission request will be automatically approved in NAV Drone after its submission by the operator.

A permission request associated with a Draft operation will also have the status Draft. To submit a permission request:

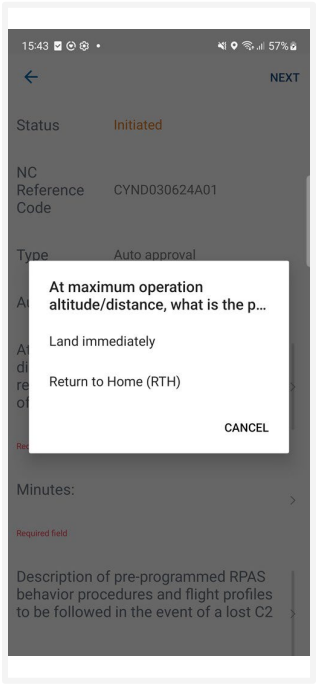
1. Make sure that the operation has been published. See also "Publish operation" on page 40. When the operation is published, the status of the permission request changes from Draft to Initiated and a NAV CANADA reference code is assigned to the permission request by NAV Drone.



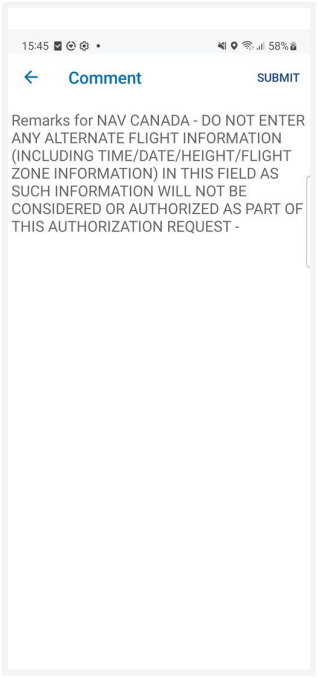
2. Tap the permission request to access its details.



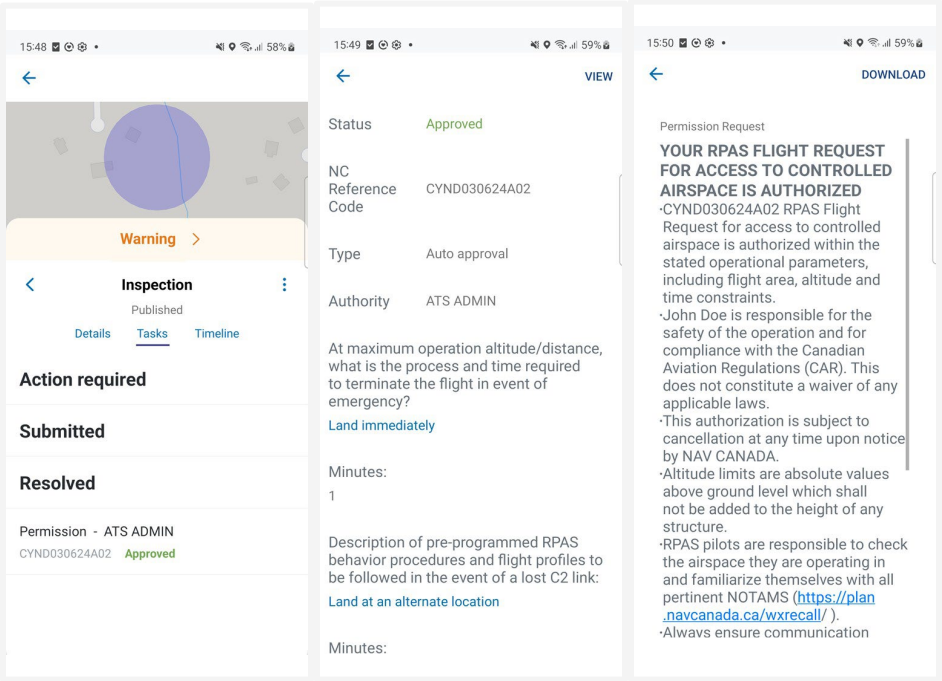
3. Complete the form and tap *Next*.



4. Add a comment if required and tap *Submit*.



When a submitted permission request is eligible for auto approval, NAV Drone automatically approves the permission request and changes its status to *Approved*. The approved permission request appears in the *Resolved* category and an email is sent to the user's email address. Tap the approved permission request to view its details. The *View* button at the top right of the screen provides access to the permission request notice, which contains all information related to the permission request. This notice can be downloaded as a PDF as proof that the operation is allowed.



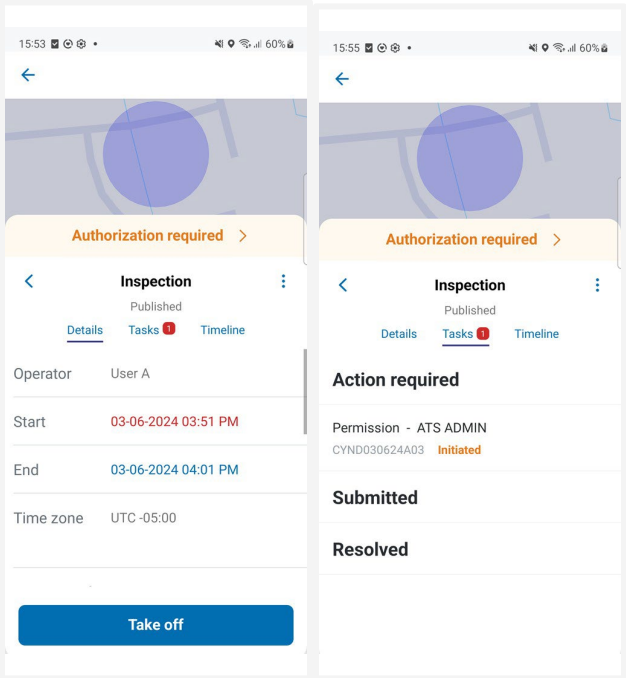
NAV CANADA reserves the right to rescind, at any time, a permission request that was approved. In that case, the operation is no longer allowed. See also "Rescinded permission requests" on page 50.

6.9.4 Permission requests requiring further coordination

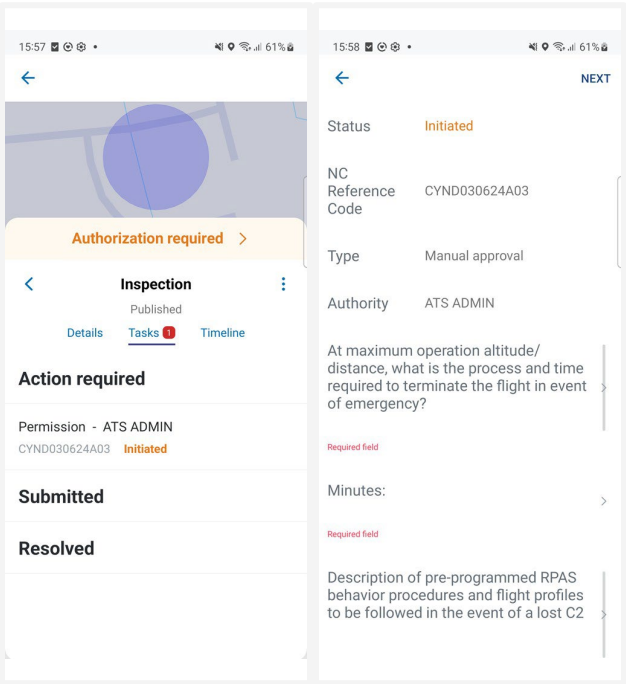
In airspace controlled by NAV CANADA, when the operation's height is above the Upper limit of any of the grid cells that the operation's flight zone intersects, the permission request will require a review by NAV CANADA after its submission.

A permission request associated with a Draft operation will also have the status Draft. To submit a permission request:

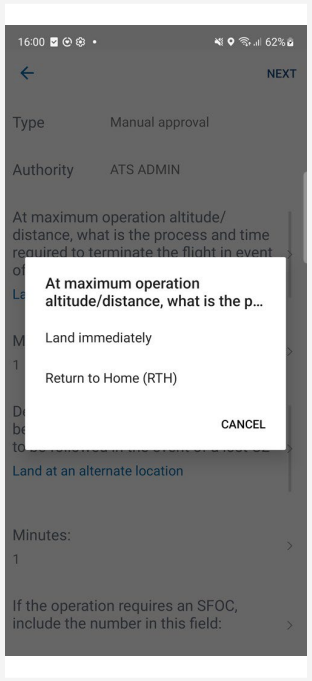
1. Make sure that the operation has been published. See also "Publish operation" on page 40. When the operation is published, the status of the permission request changes from *Draft* to *Initiated* and a NAV CANADA reference code is assigned to the permission request by NAV Drone.



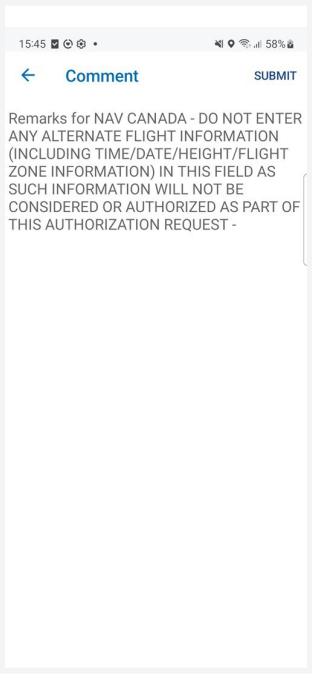
2. Tap the permission request to access its details.



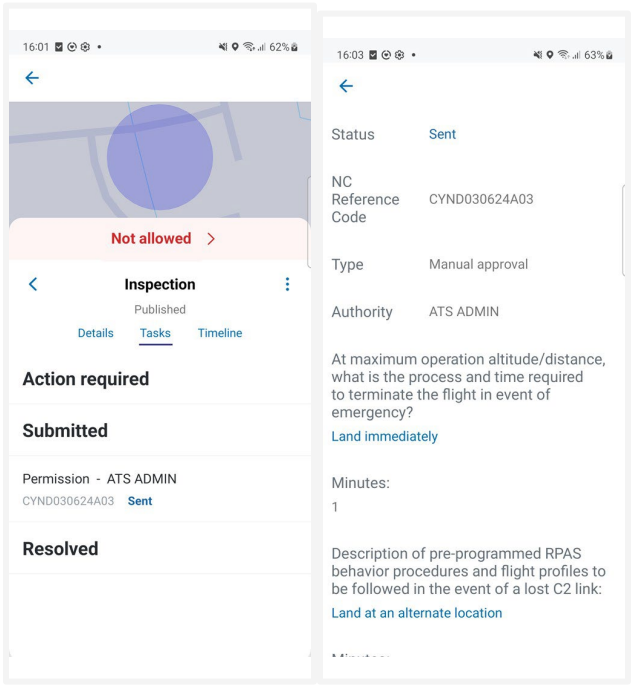
3. Complete the form and tap *Next*.



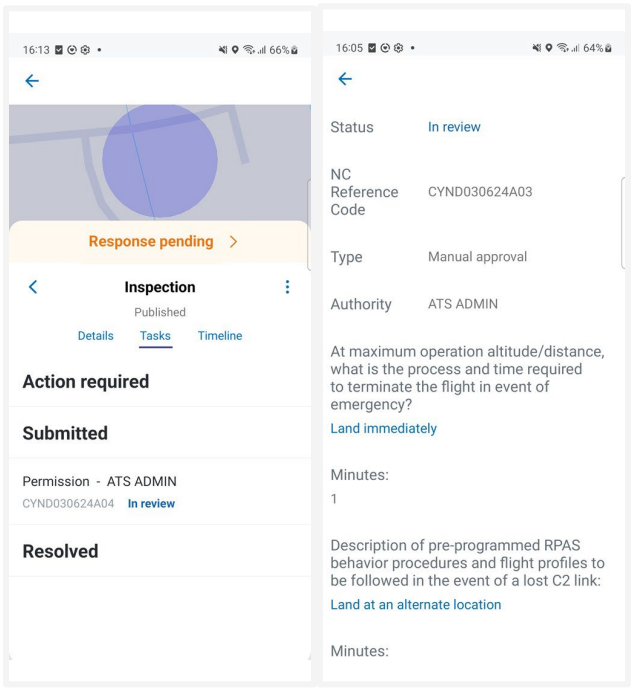
4. Add a comment if required and tap *Submit*.



When a submitted permission request requires further coordination, NAV Drone sends the permission request to NAV CANADA and changes its status to *Sent*, moving the permission request to the *Submitted* category. The user still has the option to cancel the permission request or to view the permission request details.

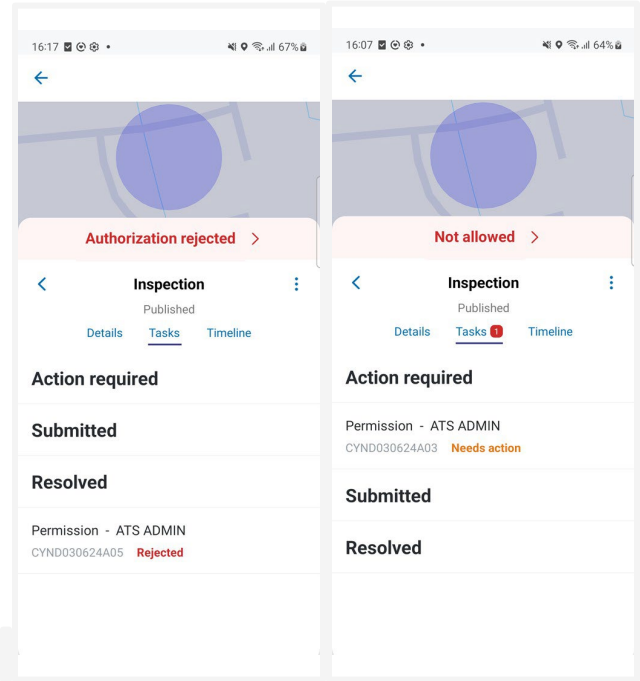


A permission request with a *Sent* status means that the permission request has been successfully submitted to NAV CANADA. When NAV CANADA starts the review, the company will change the status of the permission request to *In review* to notify the user.



The result of the review will be one of the following three options:

- Approved: after review, NAV CANADA determined that the operation is allowed.
- Rejected: after review, NAV CANADA determined that the operation is not allowed.
- Needs action: after review, NAV CANADA determined that an action by the operator is required before a decision can be made.



When a permission request has been approved, it is moved to the *Resolved* category and an email is sent to the user's email address. Tap the approved permission request to view its details.

The *View* button at the top right of the screen provides access to the permission request notice, which contains all information related to the permission request and can be downloaded as a PDF as proof that the operation is allowed.

When a permission request has been rejected, it is moved to the *Resolved* category. When a permission request needs action, it is moved to the *Action required* category.

In both cases, users will receive an email from NAV CANADA explaining why their request was rejected or needs action. This information can also be viewed on the permission request details screen under *Activity*.

NAV CANADA reserves the right to rescind, at any time, a permission request that was approved. In that case, the operation is no longer allowed. See also "Rescinded permission requests" on the next page.

6.9.5 Permission requests with status Needs action

When a permission request is reviewed by NAV CANADA and its status changes to *Needs action*, changes to the operation might be required depending on the reason provided by NAV CANADA.

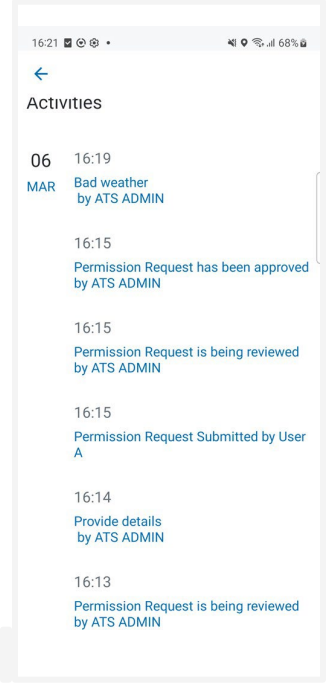
Editing a published operation is only possible in NAV Drone Web. This action will cancel all associated tasks. This is the correct course of action when the reason provided by NAV CANADA requires changes to the operation flight zone and/or the operation parameters. The previous permission request will be cancelled, and a new permission request will be created for the operation.

Please refer to the NAV Drone Web User Manual for more details.

6.9.6 Rescinded permission requests

If a permission request is rescinded, NAV CANADA will provide the reason for the status change. There are two methods a rescinded permission request will be communicated to the user:

- An email is sent to the user's email address.
- The operation's validation status indicates that the permission request has been rescinded.



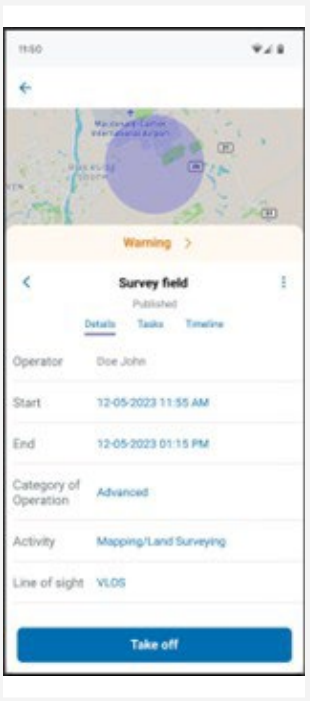
Acknowledging that the permission request has been rescinded, is only possible in NAV Drone Web. It is a mandatory task to ensure that the operator has seen the rescinded permission request and understands that the operation is no longer allowed.

Please refer to the NAV Drone Web User Manual for more details.

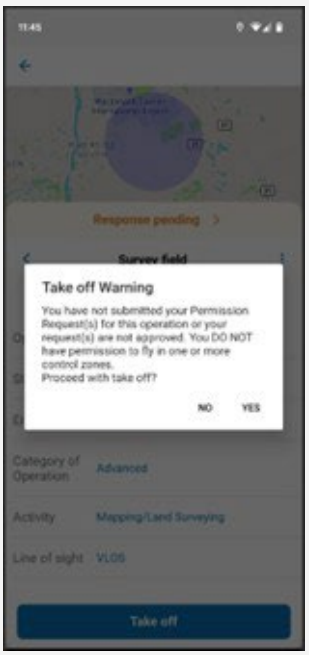
6.10 Log a flight

After publishing an operation, a *Take-off* button is available at the bottom of the Details screen. To log a flight as the operation is being conducted in the field:

1. Tap *Take-off* to indicate that a flight has just started (the drone is taking off). A Take off warning appears. Tap *Yes* if you want to continue.



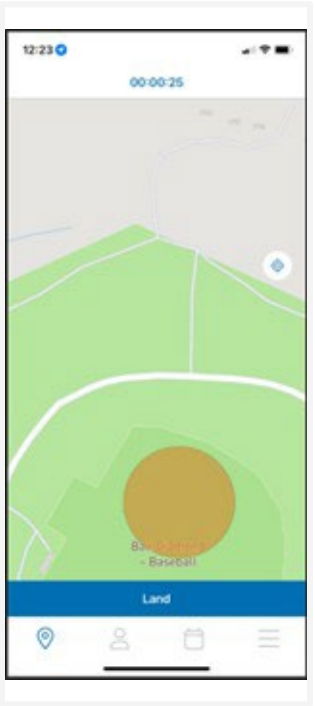
If the operation has unresolved actions, the *Take off warning* message will indicate this.



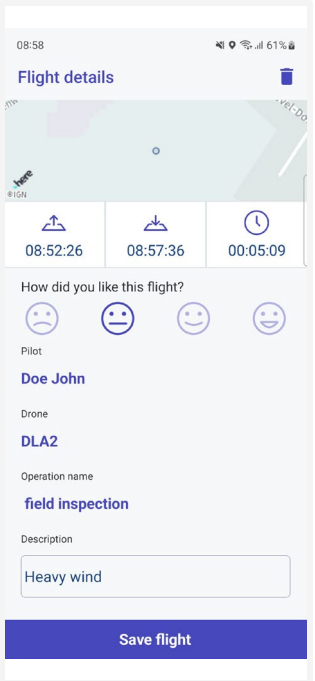
Unresolved actions mean you have not completed the permission request process and DO NOT have permission from the responsible

> authority to fly in one or more control zones. Please complete any unresolved actions prior to take-off.

2. You will be redirected to the *Map*, with a *Land* button available at the bottom of the screen. A timer is recording the duration of your flight. Tap *Land* to indicate that the flight has finished (the drone is landing).



3. You will be redirected to the *Flight details* screen, where information about your flight is displayed. You can also indicate how the flight went by selecting one of the smileys.



4. Tap *Save flight* to add the flight to your logbook. See also "Logbook" on page 72.

A flight is considered as one take off and landing sequence. As a result an operation can consist of multiple flights. The *Timeline* tab of the *Operation details* screen lists all take off and landing events. See also "Timeline" on page 32.

Logging a flight records the flight's start time, end time, and time flown, and associates this information with the drone and the pilot selected for this operation.

The operation's *Flights* tab in the *Profile* screen lists all flights logged in NAV Drone for that operation. See also "Flights" on page 55.

7 The Profile screen

You need to be logged in to make use of the functions accessible via the Profile screen.

Go to the *Profile* screen by tapping the icon at the bottom of the screen.

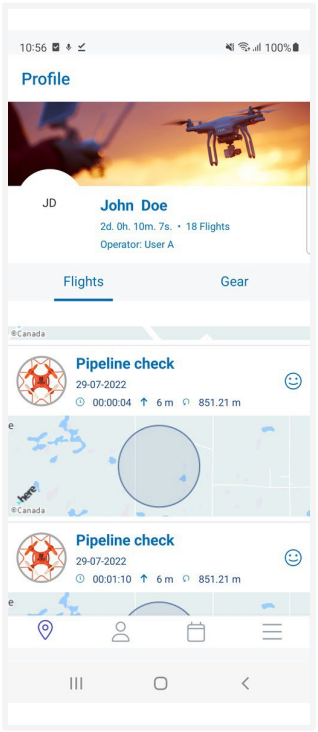
The *Profile* screen provides access to:

- Your logged drone flights (logged in NAV Drone Mobile App and Unifly Operator Web App), as well as the total number of flights and the total duration of all listed flights.
- Your gear (devices) i.e. your drone(s) including their technical characteristics

7.1 Flights

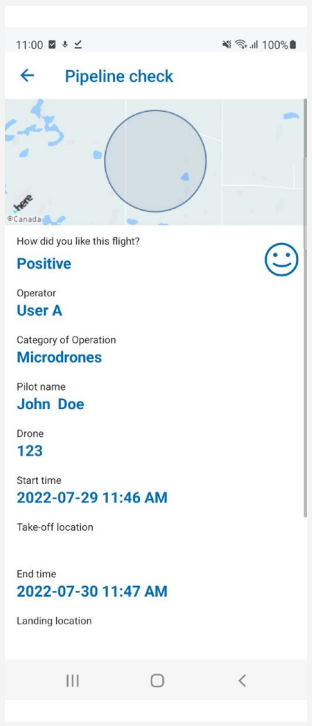
7.1.1 Display registered flights

1. Tap the *Flights* tab in the *Profile* screen.



2. Scroll up and down to see all the logged flights.

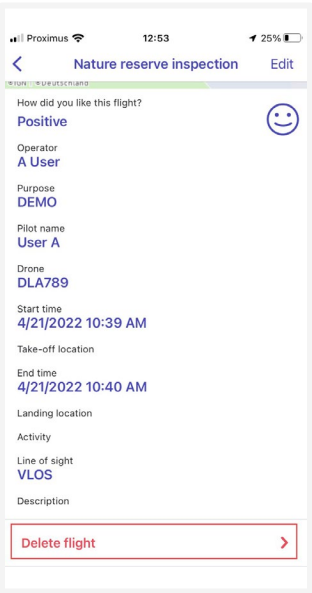
3. Tap an entry to display its detailed information in a new screen.



4. Tap the ← icon at the top left of the screen to return to the *Flights* screen.

7.1.2 Delete registered flight

1. Tap an entry to display its detailed information in a new screen.
2. Tap *Delete flight* at the bottom of the screen allows you to delete the selected flight.

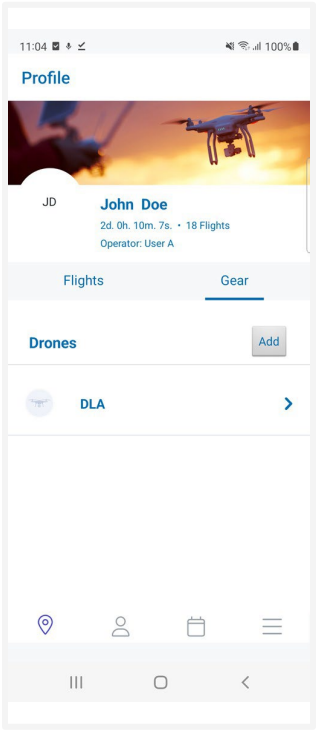


3. A warning message appears asking you to confirm that you want to delete the flight. Tap *Yes* to confirm.

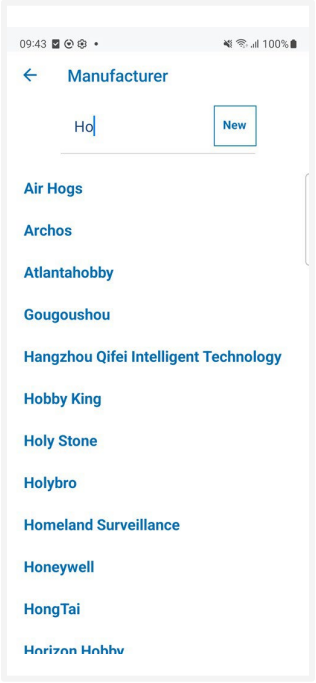
7.2 Manage drones

7.2.1 Add drone

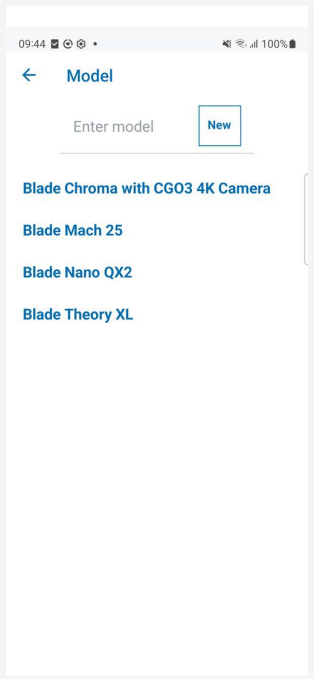
1. Tap the *Gear* tab in the *Profile* screen.



2. Tap *Add* to go to the *Add drone* screen.
3. Tap *Add manufacturer*.
    a. Type and/or select a manufacturer's name.

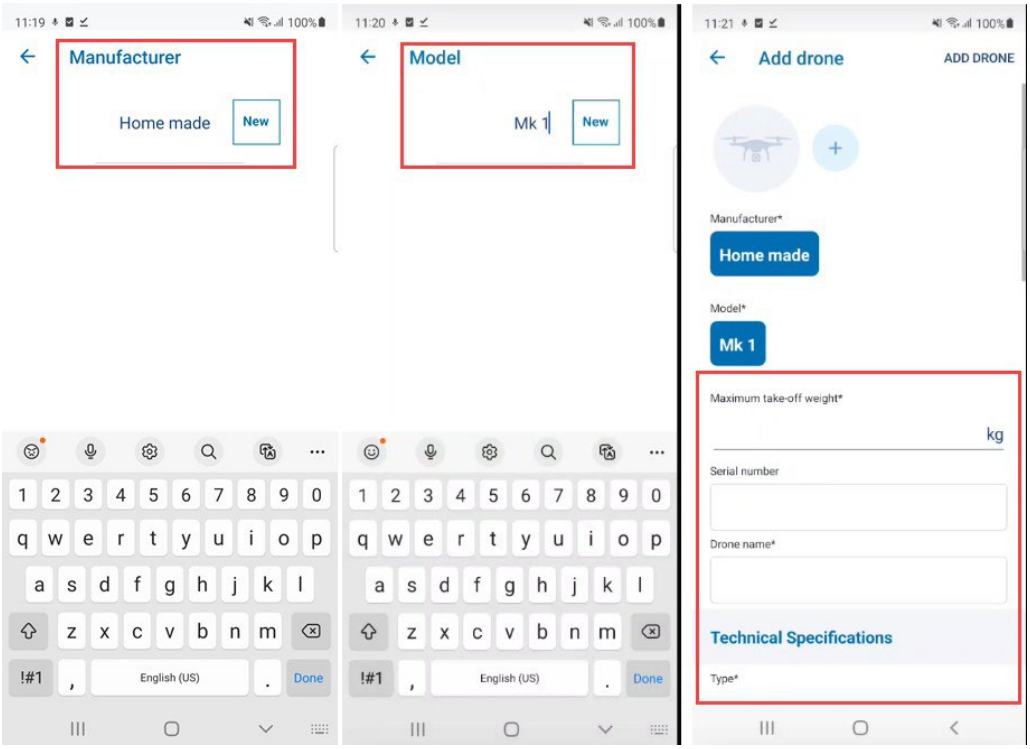


b. Type and/or select a model.



A number of specification fields are populated automatically such as *Manufacturer* and *Model* therefore, the *Maximum take-off weight, Drone Name* and *Type* under *Technical Specifications* are mandatory fields. Complete the remaining fields such as *Serial number* and the other optional fields.

If you want to add a custom made drone, start typing text in the *Manufacturer* field and tap *New*. Repeat this action for *Model* and complete the remaining specification fields.



4. Tap *Add drone*.

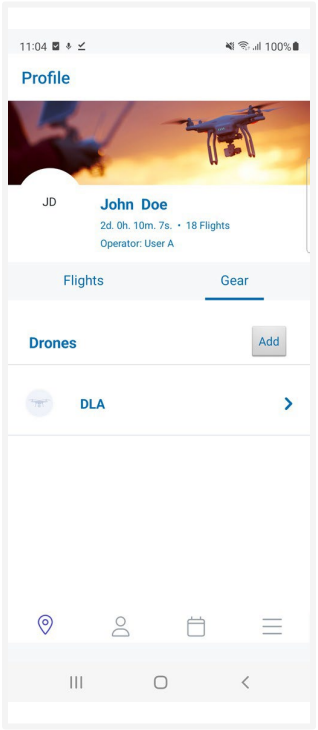
The *Manufacturer*, *Model*, *Maximum take-off weight*, and *Drone Name* fields are mandatory.

A registration number must be added for drones weighing 250 grams or more and for Advanced operations in controlled airspace.

Make sure you enter accurate data in the technical, flight, and control specifications as this information is used during the drone operation validation process.

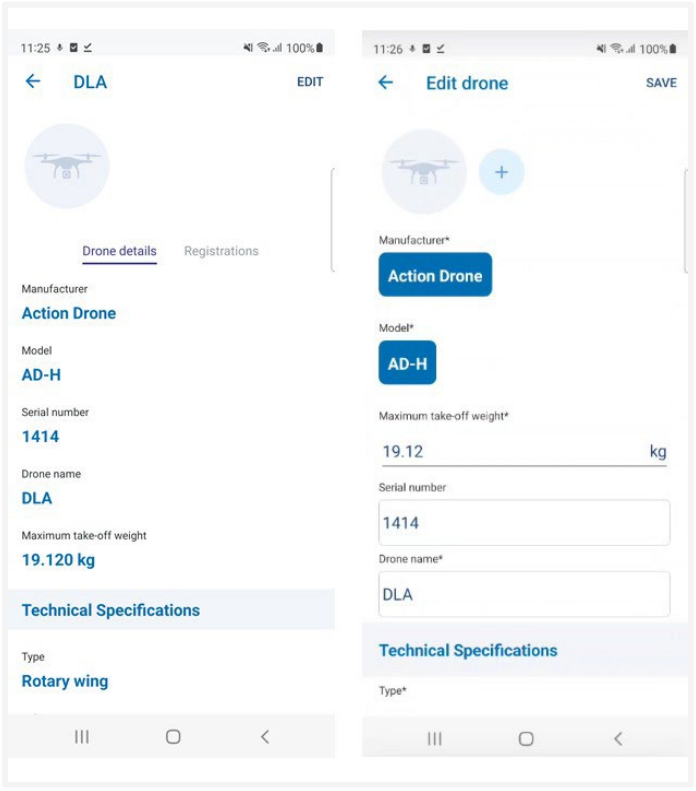
7.2.2 Edit drone

1. Tap the *Gear* tab in the *Profile* screen.



2. Scroll through the list to locate the drone you want to edit.
3. Tap the drone you want to edit.
4. Tap *Edit*.
5. Tap the field(s) you want to edit and make your changes.

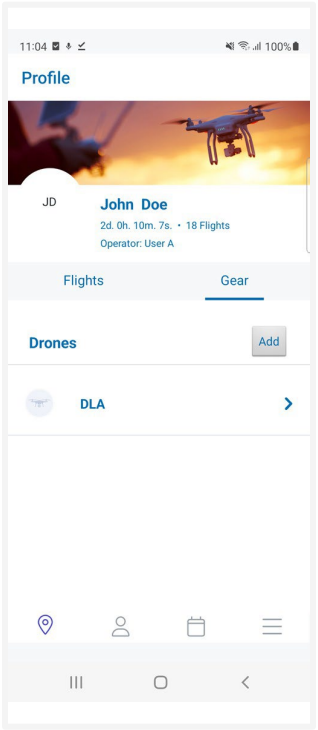
6. Tap **Save**.


11:25
100%
DLA
EDIT
Drone details
Registrations
Manufacturer
Action Drone
Model
AD-H
Serial number
1414
Drone name
DLA
Maximum take-off weight
19.120 kg
Technical Specifications
Type
Rotary wing
11:26
100%
Edit drone
SAVE
Manufacturer*
Action Drone
Model*
AD-H
Maximum take-off weight*
19.12
kg
Serial number
1414
Drone name*
DLA
Technical Specifications
Type*

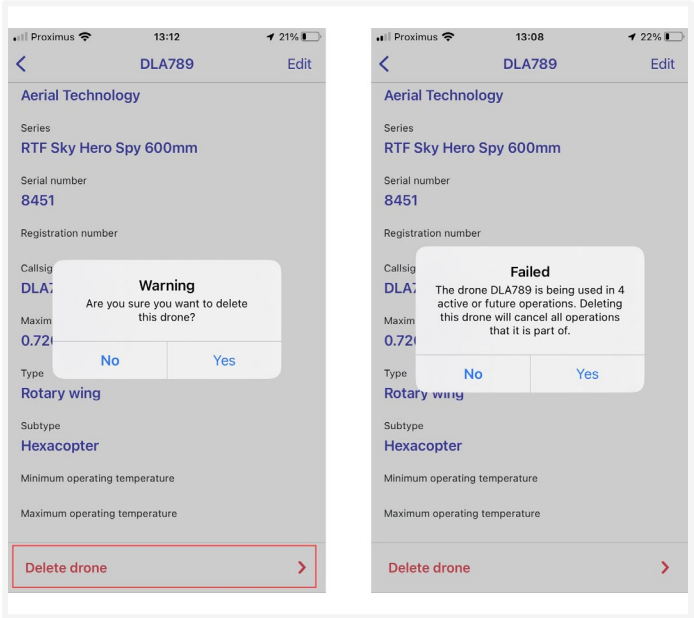
7.2.3 Delete drone

Deleting a drone will cancel all ongoing or planned operations that the drone is part of. Be sure before performing this action.

1. Tap the *Gear* tab in the *Profile* screen.



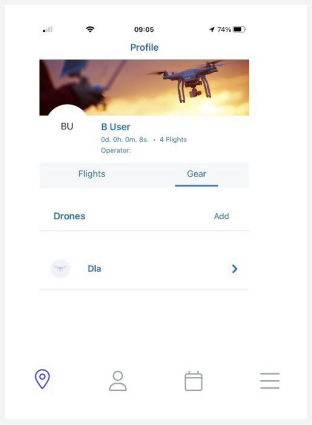
2. Scroll through the list to locate the drone you want to delete.
3. Tap the drone you want to delete.
4. Scroll to the bottom of the drone details screen and tap *Delete drone*. A warning message appears asking you to confirm that you want to delete the flight. Tap *Yes* to confirm. In case the drone is linked to any ongoing or future operations, you will receive a second warning message indicating that deleting the drone will cancel these operations. Tap *Yes* to confirm.



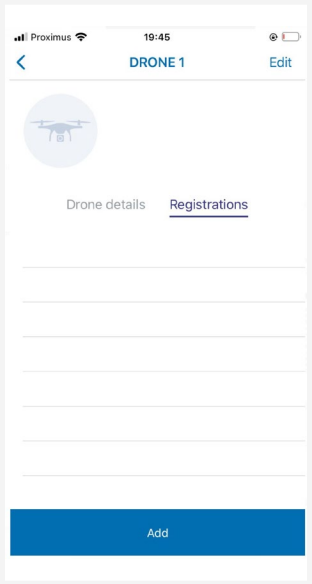
7.3 Manage drone registration

7.3.1 Add drone registration

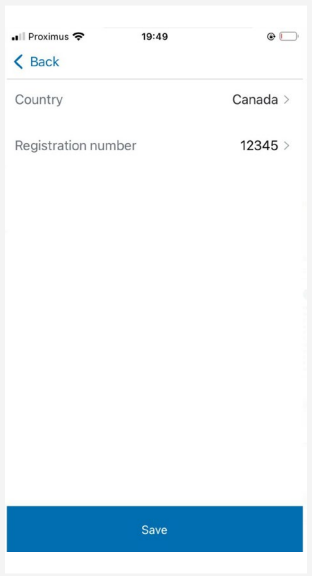
1. Tap the *Gear* tab in the *Profile* screen and tap on a saved drone.



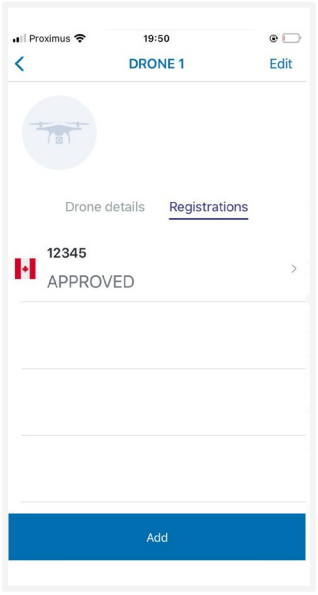
2. Tap *Registrations* and then *Add*.



3. Complete the required information and tape *Save*.

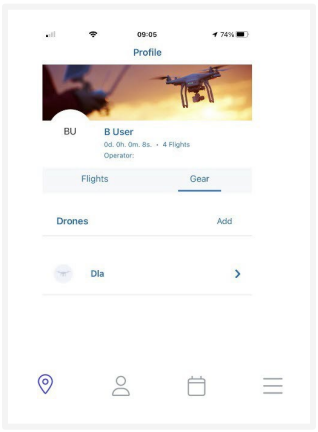


4. Drone registration is listed.

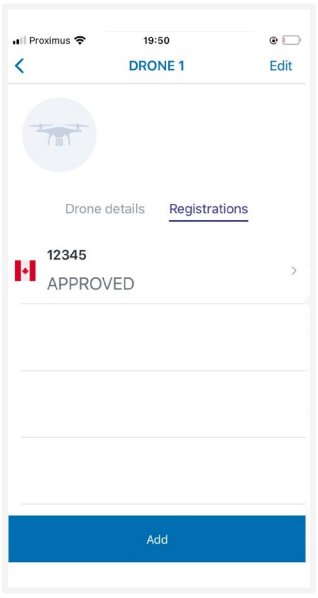


7.3.2 Delete drone registration

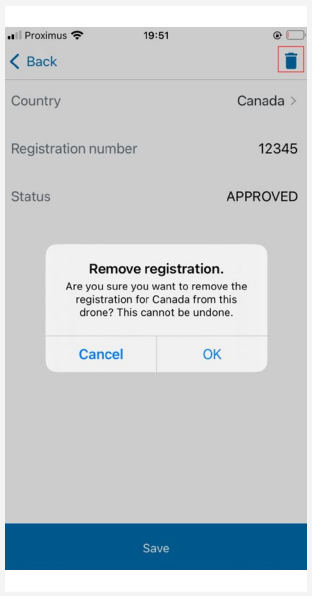
1. Tap the *Gear* tab in the *Profile* screen and tap on a saved drone.



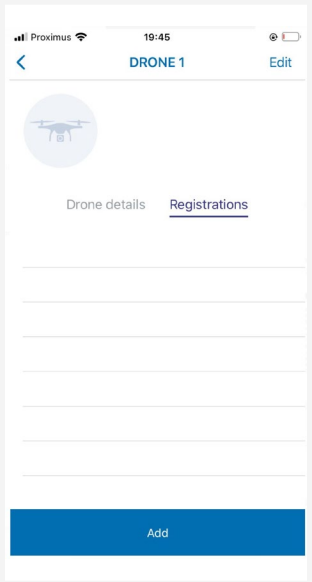
2. Tap the *Registrations* and then the saved drone registration.



3. Tap the *Delete* icon and then *OK*.



4. Drone registration is removed.

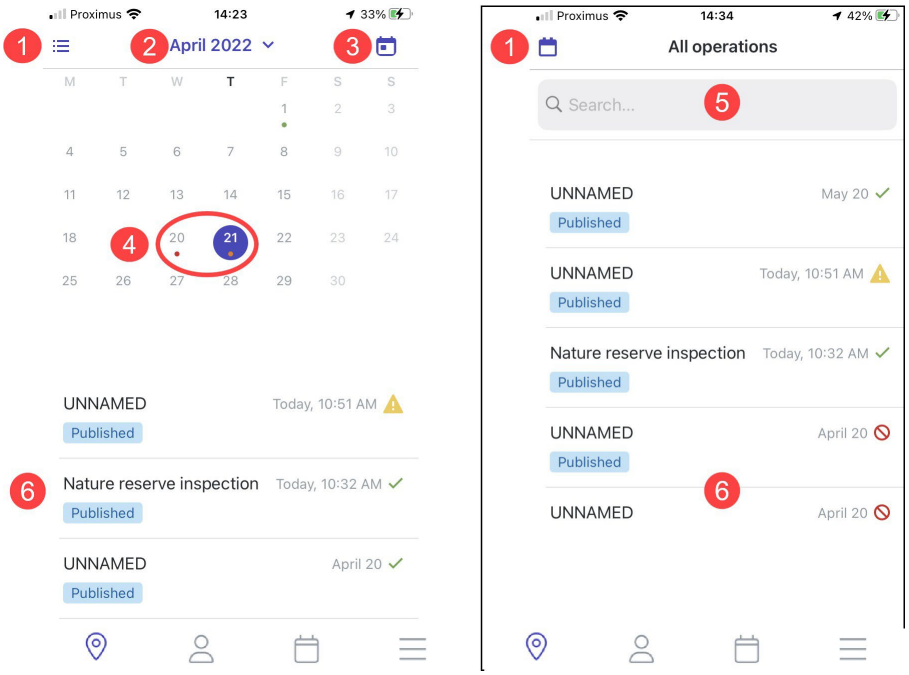


8 All operations screen

Tap in the menu bar at the bottom of the screen to access the *All operations* screen. Here you can:

- visualise all operations.
- access the operation details.
- delete operations.

The *Schedule* screen includes several screen elements:

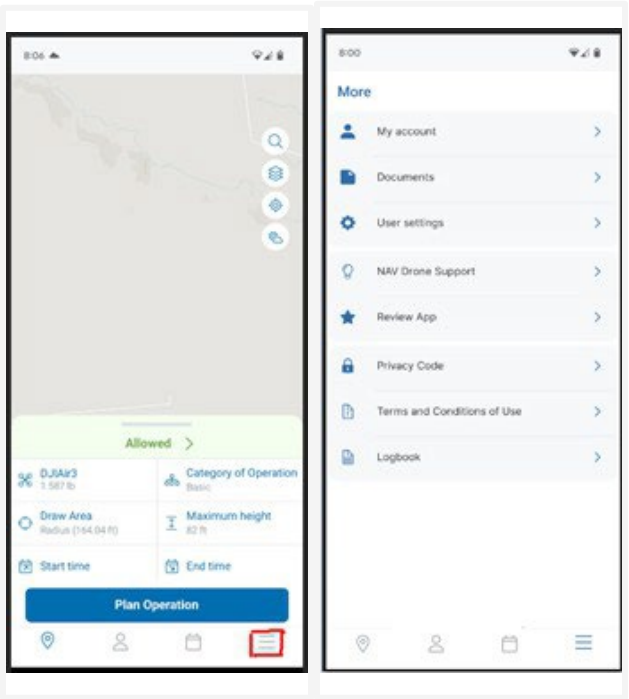


N°	Description
1	In *Calendar* view tap this icon to switch to *List* view. In *List* view, tap this icon to switch to *Calendar* view.
2	Tap here to select a date (in calendar view)
3	Tap to highlight today's date.
4	A coloured dot indicates drone operations that have been scheduled for that day: • A red dot indicates that at least one scheduled operation for that day had a negative validation result. • An orange dot indicates that at least one scheduled operation for that day had a warning or an action required as part of its validation results. • A green dot indicates all scheduled operations for that day are allowed.
5	Tap to look for a specific operation in the list.

N°	Description
6	List of scheduled operations in chronological order, including the validation results colour indicators. Tap on an operation to go to the *Details* screen from where you can: • Manage tasks and permission requests. See also "Manage tasks and permission requests" on page 41. • Copy, delete or cancel an operation, depending on its current status. See also "All operations screen" on the previous page. • Publish an operation. See also "Publish operation" on page 40. • Log a flight. See also "Log a flight" on page 51.

9 Additional features

Tap ☰ in the bottom menu bar to go to the *More* screen.

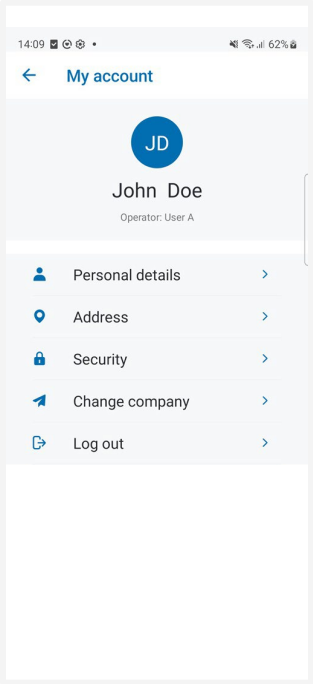


Following features are available.

- My account: Manage your account, reset your password, sign out of the application. See also "My account" on the next page.
- Documents. See also "Documents" on page 69.
- User settings: Manage your personal unit preferences. See also "User settings" on page 72.
- NAV Drone Support: visit the NAV Drone Support web page.
- Privacy code: read NAV CANADA's privacy code.
- Terms and Conditions of Use: read NAV CANADA's Terms and Conditions of Use.
- Logbook: Get detailed information on all your logged drone flights. See also"Logbook" on page 72.

9.1 My account

In the *More* screen tap *My account*.



Modify personal details and postal address

- First name
- Surname
- Email address
- Mobile number
- Postal address

Modify your security options

- Reset your password
- Multi factor authentification
- Delete your account

Change your company

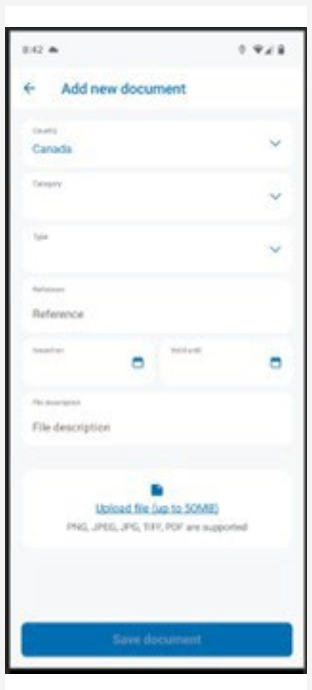
Log out from the NAV Drone Mobile App

9.2 Documents

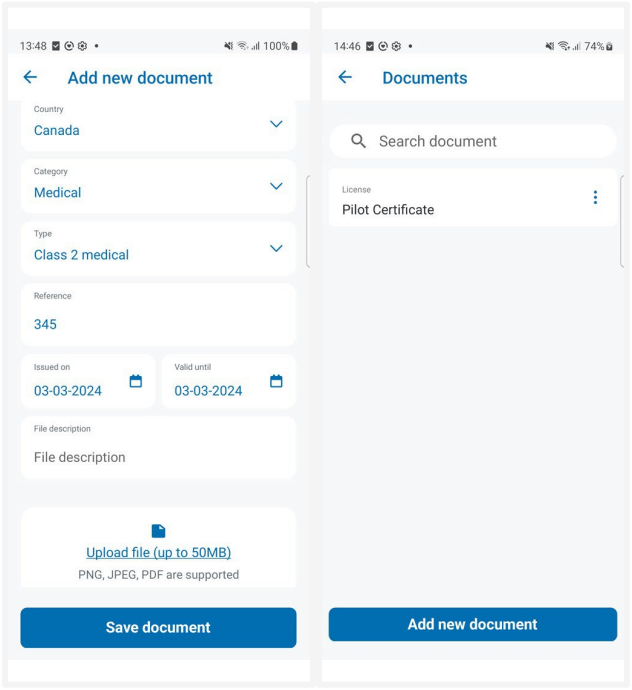
In the *More* screen tap *Documents*.

9.2.1 Add a document

1. Tap *Add new document* (see picture above) and fill the required fields.

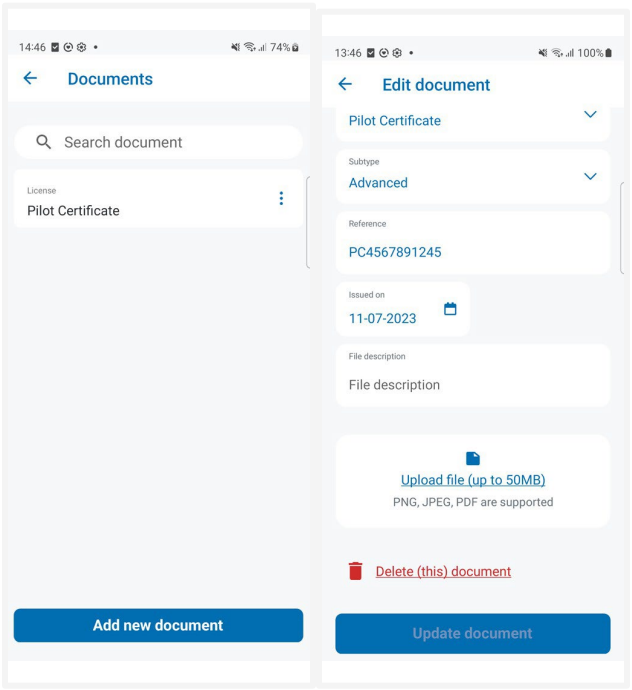


2. Tap *Save document* and the document is then listed.

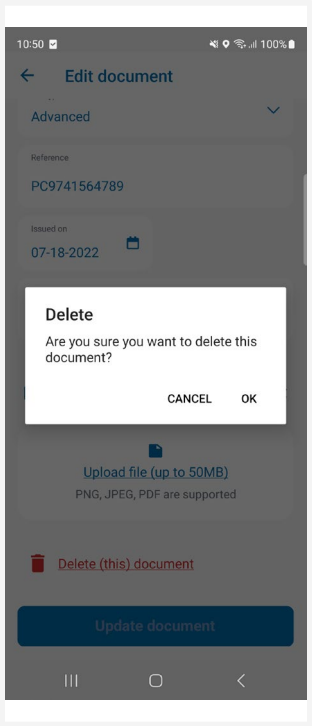


9.2.2 Delete a document

1. Tap on a saved document and tap *Delete (this) document* at the bottom of the screen.



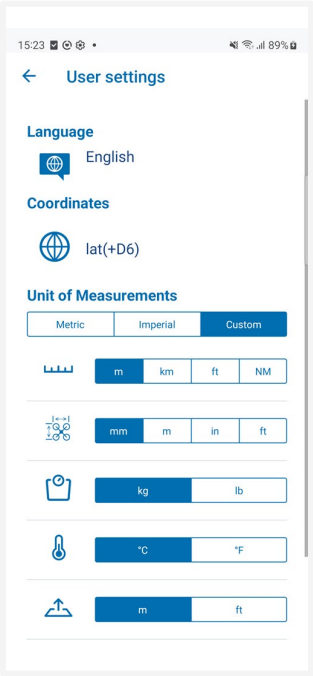
2. Tap *OK* and the document will be removed from the list.



9.3 User settings

In the *More* screen tap *User settings*.

The User settings functionality allows you to manage your app preferences.



- Select your language
- Select:
  - Coordinates format
  - Units for
    - distance
    - dimensions
    - weight
    - temperature
    - height
    - speed
    - pressure

You can use the predefined settings for the *Metric* or *Imperial* system or tap *Custom* to select your own preferences. When *Imperial* or *Metric* is selected and you change one of the settings, *Custom* is automatically selected.

When finished, tap < .

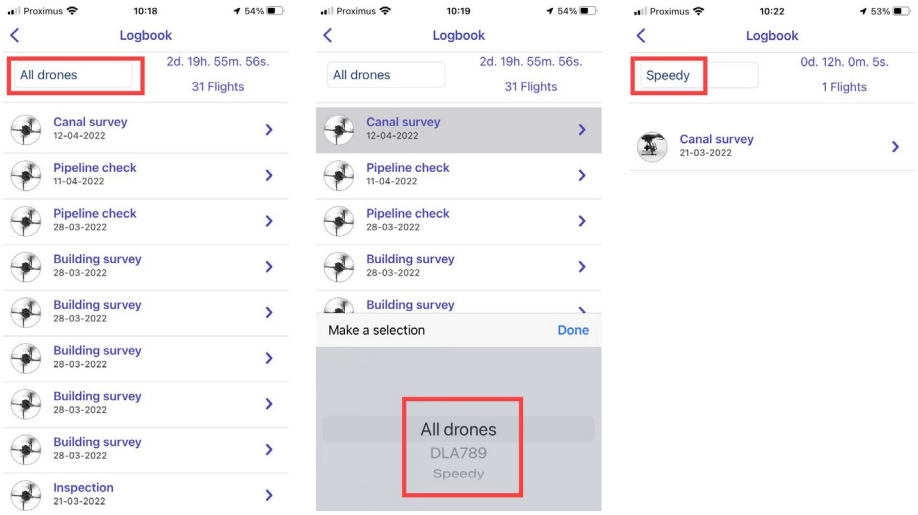
9.4 Logbook

In the *More* screen tap *Logbook*.

The *Logbook* offers a similar functionality to the *Flights* tab in the *Profile* screen, with the difference that the user can filter the results on a specific drone.

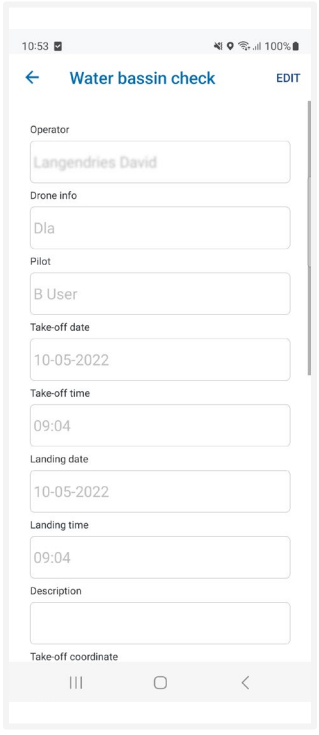
9.4.1 Filter flights

To filter the logged flights on a drone, tap the field at the top left of the screen and change it from *All drones* to the drone of your choice in the list. Once a drone has been selected, both the logbook entries listed and the total flight time and number of flights are filtered on the selected drone.



9.4.2 View flight details

Tap a flight in the list to go to the details of that flight.

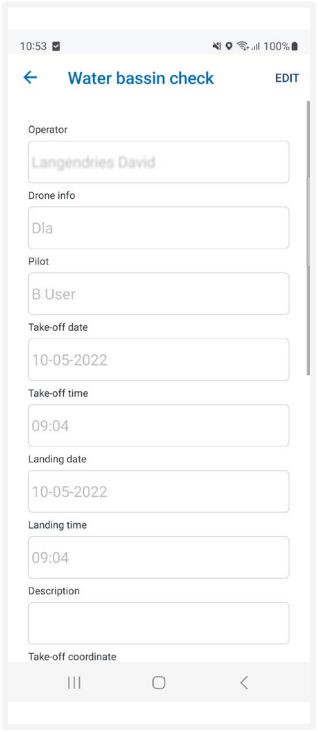


9.4.3 Edit flight details

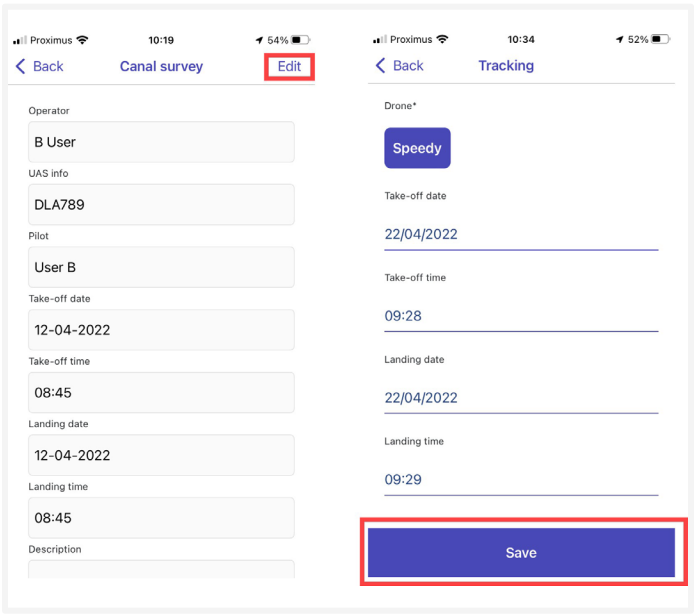
You can change a number of flight details:

- The drone that was used for the flight.
- Take-off date and time
- Landing date and time

1. Tap a flight in the list to go to the details of that flight.

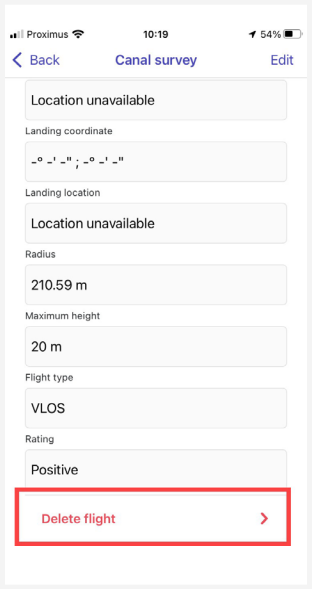


2. Tap *Edit*, make your changes and tap *Save*.



9.4.4 Delete flight

1. Tap a flight in the list to go to the details of that flight.
2. Scroll down until you see the *Delete flight* button.

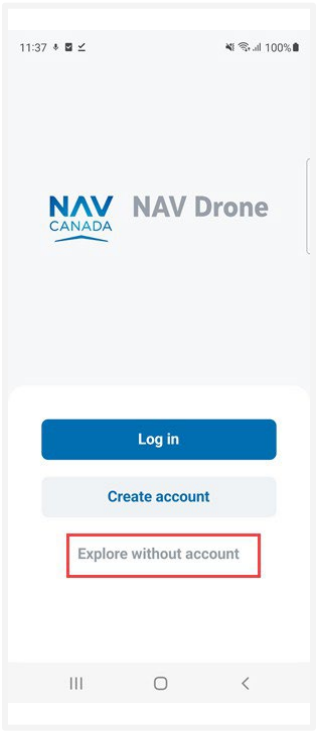


3. Tap *Delete flight*. Click *Yes* to confirm.

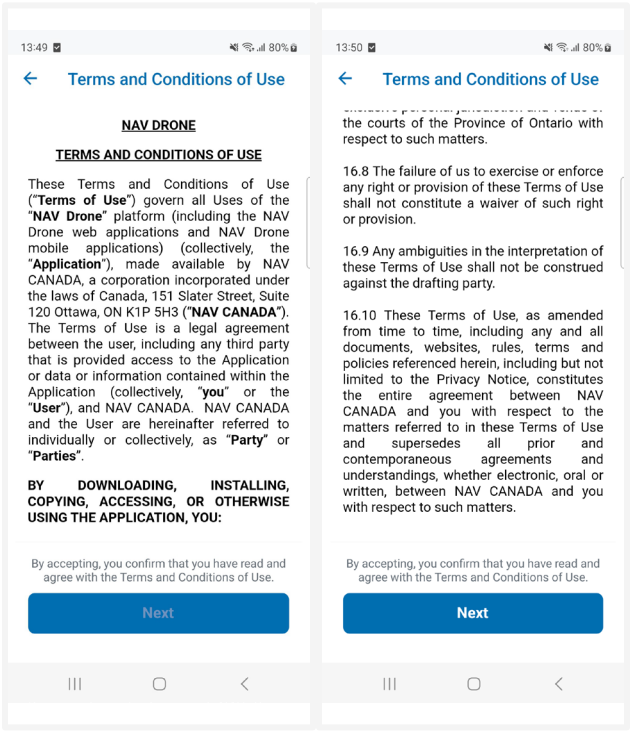
10 Explore without account

To use the app without account:

1. Launch the NAV Drone Mobile App.
2. On the Welcome screen, tap *Explore without account*.



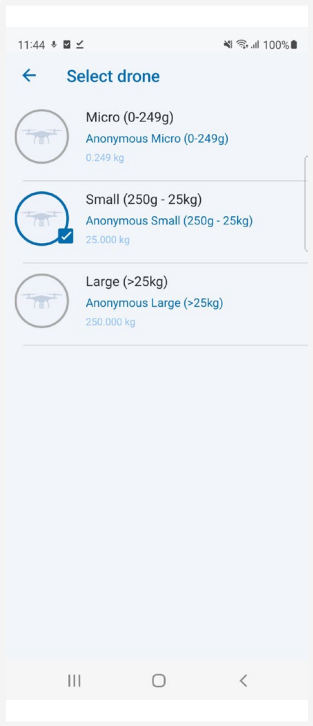
3. Read the *Terms and Conditions of Use*. Scroll down to the bottom of the text to activate the *Next* button. Do not use the NAV Drone Mobile App if you do not agree with the *Terms and Conditions of Use*.



The following functionalities are available when using the app without an account:

- Explore the map.
- Draw an operation.
- Validate the operation against applicable rules and regulations.

For validation purposes, when exploring the app without an account, you can choose from three pre-defined drones corresponding to three weight categories.



The following features, however, are not available when using the NAV Drone Mobile App without account:

- Plan operations.
- The *Profile* screen and its features.
- The *All operations* screen and its features.
- The *My account* feature.
- The *User settings* feature.
- The *Logbook* feature.

If you try to use any of these features you will receive a message asking you to sign up to gain access.

11 Addendum

11.1 Operation constraints

The size of an operational area is limited to optimize the use of the airspace and prevent the monopolization of high-value areas. If you draw an area that exceeds the limits, you receive a notification and will need to adapt your drawing.

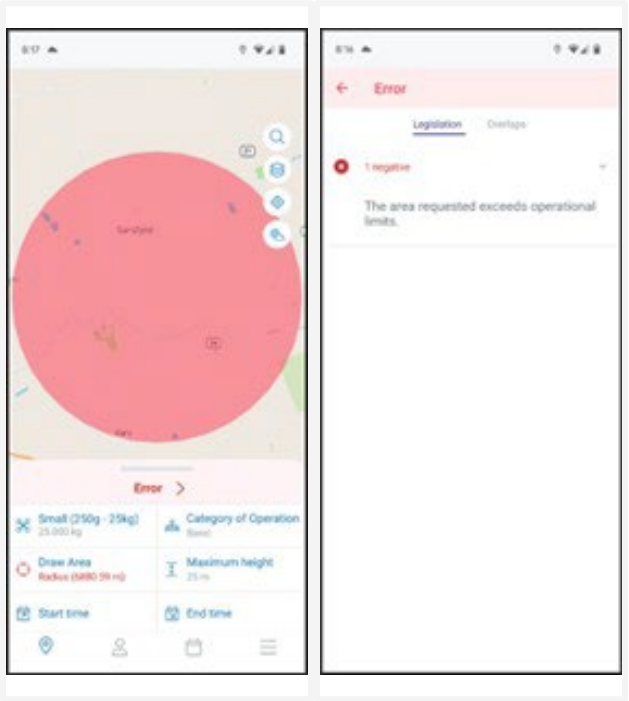
11.1.1 Size constraints

The maximum area of a flight zone is limited. Depending on the shape of the operation, the constraints are:

- Polygon: 12.5 NM²
- Circle: 12.5 NM²
- Path: 12.5 NM²

These values are subject to change by NAV CANADA.

The NAV Drone Mobile App will prevent you from publishing an operation that exceeds the maximum operational area. You can, however, save the operation as draft.

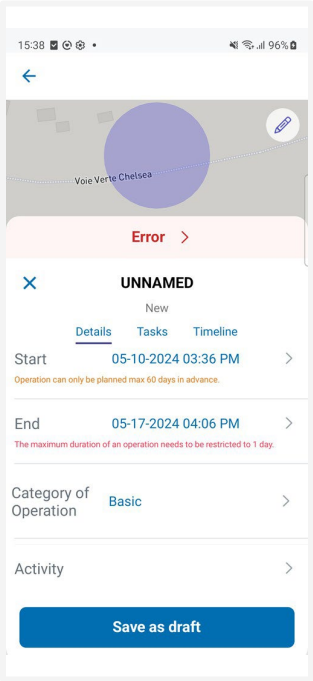


Adapt the related parameter accordingly and, if the operation is already in *Draft* state, tap the *Update* button. If the new data adhere to the operation constraints you will be able to *Publish* your operation.

11.1.2 Time constraints

An operation can only be planned up to 60 days in advance, and its maximum duration is limited to 24 hours. These values are subject to change by NAV CANADA.

The NAV Drone Mobile App will prevent you from publishing an operation that exceeds either of these time constraints.



Adapt the related parameter accordingly and, if the operation is already in *Draft* state, tap the *Update* button. If the new data adheres to the operation constraints you will be able to *Publish* your operation..

12 Glossary

Title	Abbreviation	Description
Above Ground Level	AGL	The altitude expressed in feet measured above ground level.
Above Sea Level	ASL	The altitude expressed in feet measured above sea level.
Activity	-	Type of operation.
Aerodrome	AD	Any area of land, water (including the frozen surface thereof) or other supporting surface used, designed, prepared, equipped, or set apart for use, either in whole or in part, for the arrival, departure, movement, or servicing of aircraft. This includes any buildings, installations, and equipment situated thereon or associated therewith.
Aerodrome routine meteorological report	METAR	A METAR describes the actual weather conditions at a specified location and at a specified time as observed from the ground.
Air Navigation Service Provider	ANSP	Organization which is responsible for the provision of air navigation services in domestic or international airspace.
Air Traffic Control	ATC	A service provided to aircraft in controlled airspace.
Air Traffic Controller	ATC	A person holding a valid licence to control air traffic.
Air Traffic Management	ATM	A management concept aimed at ensuring full utilization of ATC systems, according to the possibilities offered by future air navigation systems, as they evolve, from both a national and an international perspective.
Air Traffic Service	ATS	Includes services provided by Air Traffic Controllers and Flight Service Specialists at Area

Title	Abbreviation	Description
		Control Centres (ACC), Towers (TWR), Flight Service Stations (FSS and Flight Information Centres (FIC).
Air Traffic Services Specialist	-	The ATS Specialist is a member of the NAV CANADA personnel who manages access to controlled airspace.
Airport Advisory Service	AAS	Provision by an FSS of information relevant to the departure and arrival phases of a flight and to the transit of an MF area.
Airspace	-	The portion of the atmosphere controlled by a country above its territory, including its territorial waters or, more generally, any specific three-dimensional portion of the atmosphere.
Altitude	ALT	The height of an object or point in reference to sea level or ground level.
Approval	-	Authorization granted to an operator to manoeuvre in controlled airspace under conditions specified by an ATS unit based on the information provided in the permission request
Area Control Centre	ACC	An ATC unit that provides ATC service to aircraft operating within a flight information region (FIR)
Area of Responsibility (Glossary for Pilots and Air Traffic Services personnel - TP11958E)	AOR	A geographical area within which alerting service is provided by an ATS unit designated as the responsible unit.
Area of Responsibility (NAV Drone)	AOR	The group of control zones for which an ATS unit is responsible for coordinating the assessment of RPAS permission requests.

Title	Abbreviation	Description
Base map	-	A base map is a background layer with geographic information. A base map usually provides location references for features that do not change often such as boundaries, rivers, lakes, roads, and highways.
Beyond Visual Line of Sight	BVLOS	Flight performed beyond the pilot's/observer's line of sight.
Canada Air Pilot	CAP	A document in which the Minister may establish standard procedures for air operations at specific aerodromes. Contains descriptions of approaches, SID, STAR and airport layout and procedures.
Canadian Aviation Regulations	CARs	The rules enacted under the Aeronautics Act, that govern civil aviation in Canada. Replacing the Air Regulations and the Air Navigation Orders, the CARs and their associated standards came into force on October 10, 1996, after a comprehensive consultation process between Transport Canada and the aviation community. This co-operative and partnership approach to rule-making continues within the Canadian Aviation Regulation Advisory Council (CARAC), which discusses proposed amendments to the CARs and their associated standards.
Canadian Water Aerodrome Supplement	CWAS	A joint civil/military publication concerning water aerodromes that is intended to be used to supplement enroute charts and the Canada Air Pilot (CAP).
Certificate	-	In a professional context: a designation earned by a person to assure qualification to perform a job or task. Example: a drone pilot certificate. In a digital context: in cryptography, a public key certificate, also known as a digital certificate or identity certificate, is an electronic document used to prove the ownership of a public key.
Certification Level	-	Two categories (Basic and Advanced) of drone operations as defined under the Canadian Aviation

Title	Abbreviation	Description
		Regulations Part IX. Each category has a different set of rules drone pilots must follow.
Checkbox	-	Graphical control element that allows the user to make a binary choice, i.e. a choice between one of two mutually exclusive options. For example, the user may have to answer 'yes' (checked) or 'no' (not checked) on a simple yes/no question.
Circuit – Aerodrome traffic circuit	-	The specified path to be flown by aircraft operating in the vicinity of an aerodrome
Civil Aviation Authority	CAA	A government statutory authority in each country that maintains an aircraft register and oversees the approval and regulation of civil aviation.
Command and Control	C2	The data link between the remotely piloted aircraft and the remote pilot station for the purpose of managing flight.
Control tower	TWR	A unit established to provide ATC service to aerodrome traffic. Also called “Tower”.
Control Zone	CZ	A controlled airspace of defined dimensions extending upwards from the surface of the earth up to and including 3000 ft AAE unless otherwise specified
Coordinated Universal Time	UTC	The time system used in aviation operations and given to the nearest minute, except when the pilot requests a time check. Time checks are given to the nearest 15 s. The day begins at 0000 and ends at 2359. Synonymous with Zulu time.
Dialog Box	-	Graphical control element in the form of a small window that communicates information to the user and prompts them for a response.
Disclaimer	-	Terms and conditions that apply to a user’s access and use of the NAV Drone applications.
Drone	-	An unmanned aircraft guided by remote control or

Title	Abbreviation	Description
		onboard computers. Synonymous of RPA (Remotely Piloted Aircraft), UAV (Unmanned Aerial Vehicle), and UAS (Unmanned Aerial System).
Drone Name	-	Nickname that a pilot can associate with a drone.
Drone Operator	-	The drone operator means any legal or natural person who operates or intends to operate one or more drones.
Drone Pilot	-	A drone pilot is the person designated by a drone operator who is in command of the drone and in charge of the safe conduct of the flight. Depending on a number of factors, including the drone type and the drone operation, a drone pilot may be required to have one or more active certifications to be allowed to execute the drone flight.
Emergency		A situation that places an aircraft or other vehicle, or some person on board or within sight, in a state that requires immediate action.
Explore without account	-	Possibility in the NAV Drone mobile app to try out the mobile app without registering and logging in. Therefore, not all functionalities are available.
Flight	-	A flight is considered as one takeoff and landing sequence. Therefore, an operation can consist of multiple flights.
Flight Information Centre	FIC	A centralized ATS unit that provides services pertinent to pre-flight and the enroute phase of flight
Flight Information Region	FIR	An airspace of defined dimensions extending upwards from the surface of the earth within which flight information service (FIS) and alerting service are provided.
Flight Service Station	FSS	An ATS unit that provides services pertinent to the arrival and departure phases of flight at uncontrolled aerodromes and for transit through a mandatory frequency (MF) area

Title	Abbreviation	Description
Flight Service Specialist	FSS	A certified employee assigned duties and responsibilities at an FSS or FIC
Fly-away		An interruption or loss of the command and control link (C2 Link) where the pilot is unable to affect control of the aircraft and the aircraft is no longer following its preprogrammed procedures, all of which results in the RPA operating in an unpredictable or unplanned manner
Geozone	-	Any airspace that may have restrictions, may require permission, or may require awareness of manned aviation.
Ground Control Station	GCS	A ground control station refers to the complete set of ground-based hardware systems used to control a drone. Synonymous with Remote Pilot Station (RPS).
Height	-	In aviation: the vertical distance of an object measured from a stated reference such as the ground (above ground level = AGL). Reported in feet.
International Civil Aviation Organization	ICAO	A specialized agency of the United Nations, the objective of which is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport.
JavaScript Object Notation	JSON	A common data format used for asynchronous browser–server communication.
Keyhole Markup Language	KML	Keyhole Markup Language (KML) is an XML notation for expressing geographic annotation and visualization within Internet-based, two-dimensional maps and three-dimensional Earth browsers. KML was developed for use with Google Earth, which was originally named Keyhole Earth Viewer. KML became an international standard of the Open Geospatial Consortium https://www.ogc.org/standards/kml in 2008. As for any XML standard, the message grammar can be

Title	Abbreviation	Description
		checked to see if it is correctly formatted so the system using it will be able to read and process the data.
Logbook	-	For pilots and operators, the logbook keeps track of all flights conducted under a user account and provides statistics regarding the total flight time for the pilots and drones.
Lost C2 Link	-	The loss of command and control link (C2 Link) contact with the RPA such that the pilot can no longer manage the aircraft's flight. A lost C2 Link does not necessarily result in a fly-away situation, as the RPA will be programmed to follow a predictable flight path until the link is reacquired or the flight is terminated. Lost C2 link procedures are programmed by the manufacturer, and on some models, may be modified/programmed by the RPAS operator.
Map Layers	-	Airspace zone categories displayed on top of the background map (base map).
Maximum Take-Off Weight	MTOW	Maximum take-off weight (MTOW) of an aircraft is a value defined by the aircraft manufacturer. It is the maximum mass at which the aircraft is certified for takeoff due to structural or other limits. MTOW is usually specified in units of kilograms or pounds. The mass is a fixed value and does not vary with changes in temperature, altitude, or runway available.
Multicopter	MC	A rotorcraft with more than two rotors. An advantage of multirotor aircraft is the simpler rotor mechanics required for flight control.
Nautical Mile	NM	The international nautical mile is defined as exactly 1852 metres (about 1.15 miles). The derived unit of speed is the knot, one nautical mile per hour.
No Drone Zone (NAV Drone)	NDZ	Specific to NAV Drone, a No Drone Zone is an airspace in which drone traffic is restricted or

Title	Abbreviation	Description
		forbidden. No Drone Zones are temporary.
Notice to airmen	NOTAM	A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.
Operation (NAV Drone)	-	An operation is created by a pilot or by an operator and represented by a flight zone and associatedparameters such as the operation type, the start/end date and time, the designated pilot, the drone planned to be flown, etc.
Operator	-	A distinction is made between the operator level (commercial entity) and the user level (individual). One operator can invite multiple users to join their crew (drone pilots, observers, and payload specialists). In the same way, one user can be associated with multiple drone operators, as is the case for a freelance pilot who is contracted by multiple operators, for example.
Permission Request	-	For Advanced operations in airspace controlled by NAV CANADA, the operator must submit a permission request to NAV CANADA. Permission requests are evaluated either automatically or manually, depending on the height and location of the operation's flight zone. The possible statuses for a permission request are: Draft, Initiated, Sent, In Review, Needs Action, Approved, Rejected, Rescinded, and Cancelled.
Pilot in Command	PIC	See "Drone Pilot".
Registration Number	-	A registration number assigned to a drone by Transport Canada
Remote Control	RC	The use of control signals transmitted by radio to remotely control a device.
Remote Pilot	RP	See "Drone Pilot".

Title	Abbreviation	Description
Remotely Piloted Aircraft	RPA	See "Drone".
RPAS Traffic Management	RTM	An international aviation concept that brings an automated ATM- like system to very low-level airspace which will be occupied primarily by unmanned aircraft (commonly referred to as drones).
Shape handle	-	Graphic control element in the form of a small square, used for editing a shape by dragging the handle.
Tasks	-	For a drone operator, the Tasks tab list all tasks related to an operation, in three categories representing three different task statuses: Action Required, Submitted and Resolved. In the context of NAV Drone, tasks are associated with a permission request.
Tooltip	-	Common graphical user interface element displayed as an informational text box when hovering over an item. It is used in conjunction with a cursor, usually a pointer.
Transport Canada	TC	The federal authority responsible for regulating civil aviation
Transport Canada Aeronautical Information Manual	TC AIM	A primary Transport Canada publication of aeronautical information intended to serve as a pre-flight reference source for pilots and that contains information essential to aircraft operations in Canadian Domestic Airspace (CDA). It consolidates information of a lasting nature into a single document. Topics covered are general flight information, communications, meteorology, rules of the air and ATC procedures, entry and departure requirements for international flights, search and rescue, aeronautical charts and publications, licensing and registration, health, and airmanship

Title	Abbreviation	Description
UAS Traffic Management	UTM	Equivalent to RPAS Traffic Management (RTM)
Uncontrolled aerodrome	-	An aerodrome at which a control tower has not been established. This designation also applies during the non-operational period when an established control tower is on reduced hours (part-time)
User agency	-	The agency, organization, or military command responsible for the activity for which Class F airspace has been provided. The user agency shall be identified for Class F restricted areas, military operations areas, and danger areas and, where possible, should be identified for Class F advisory areas.
Validation	-	An operation validation consists in verifying that the operation complies with applicable rules and regulations.
Vertex	-	In geometry, a vertex is a point where two or more curves, lines, or edges meet. As a consequence, the point where two lines meet to form an angle and the corners of polygons are vertices.
Very Low Level	VLL	Very Low-Level airspace (VLL) is usually understood to be the volume of air below 500ft above (non-built-up) ground level.
Visual Flight Rules	VFR	The rules that govern the procedures for conducting flight under visual conditions. The abbreviation is used by pilots and controllers to indicate a type of flight plan or weather conditions.
Visual Line-of-Sight	VLOS	Unaided visual contact at all times with a remotely piloted aircraft that is sufficient to be able to maintain control of the aircraft, know its location, and be able to scan the airspace in which it is operating in order to perform the detect and avoid functions in respect of other aircraft or objects.
Visual	VMC	Meteorological conditions, expressed in terms of

Title	Abbreviation	Description
Meteorological Conditions		visibility and distance from cloud, equal to or greater than the minima specified in CAR 602.

For all information about the NAV Drone Mobile App, please visit https://www.navcanada.ca/en/flight-planning/drone-flight-planning/nav-drone-support.aspx.

If you have any questions, please contact us by sending an email to navdrone@navcanada.ca.