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NC-SPACES – NOTAM WORKSPACE

User Manual: NOTAM Retrieval & Display
(Desktop & Mobile UI Edition)

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1. Introduction

This manual provides step-by-step guidance for retrieving, viewing, and producing copies of NOTAMs in the NC-SPACES NOTAM workspace. It follows best practices for multi-platform documentation by separating workflows into common components and mobile specific workflows.

NAV CANADA would like to thank the stakeholders who provided input into the design concept and development feedback for this workspace.

Assumptions and Limitations

Users of this workspace are seeking to query, display, and retrieve a copy of NOTAM data. The workspace is not a tool to disseminate, revise, or cancel NOTAMs.

Users of this workspace work within aviation and have domain expertise in the field of aviation. The end-users are anticipated to be among the following: pilots, pilot trainees working with the guidance of a flight instructor, employees of NAV CANADA, flight dispatchers, airport operators, and other knowledgeable users in the aviation field.

Users have sufficient knowledge to interpret abbreviated terms, coded information, and numerical values contained within NOTAM. For clarification of NOTAM text, users are expected to consult the current edition of the Canadian NOTAM Operating Procedures manual. (CNOP)

Users have basic familiarity with the NC-SPACES environment and can: navigate, change UI settings, change target language, and where applicable, log in to NC-SPACES.

Users are seeking NOTAMs within Canadian Domestic Airspace.

Note: The NC-SPACES NOTAM workspace provides data pertaining to operation of Canadian aircraft, and operation within Canadian Domestic Airspace. NAV CANADA is not responsible for providing NOTAM data for foreign airspace. Search results from trajectories which originate in, terminate in, or transit through foreign airspace will yield only Canadian NOTAM data for the impact segments of the trajectories.

In the initial release, search criteria are limited to aerodromes published in the Canada Flight Supplement / Supplément de vol Canada and Canada Water Aerodrome Supplement / Supplément hydroaérodromes – Canada

NAVAID, intersection/fix, radial/distance and lat/long (DMS/GPS) are not supported.

Supported Devices

The NC-SPACES NOTAM workspace is designed and tested on current versions of Microsoft Edge and Google Chrome on desktop devices.

For mobile use it is tested on:

- iOS devices including iPhone, iPad mini and iPad devices using Google Chrome and Safari
- Android devices including Google Pixel Tablet, and Google Pixel Pro mobile phones using Google Chrome.

The workspace is known to work other browsers and similar devices, but browsers outside of Microsoft Edge, Google Chrome, and Safari are not accommodated for enhancements or bug fixes.

Official Language Support

NC-SPACES supports operation in English and French. All NOTAMs will be retrieved and displayed to the user in English when the NC-SPACES user interface is set to English.

If the user interface is set to French, any NOTAMs which have been disseminated in French at the source, will be displayed in French. Where a NOTAM is not available in French from the source, the English version will be displayed.

NC-SPACES provides NOTAM information as received from the source and does not perform any additional translation operations.

2. Common components

2.1 Accessing NOTAM workspace

1. Navigate to the NC-SPACES.
2. Locate the NOTAM card.
3. Select the 'Open' icon.

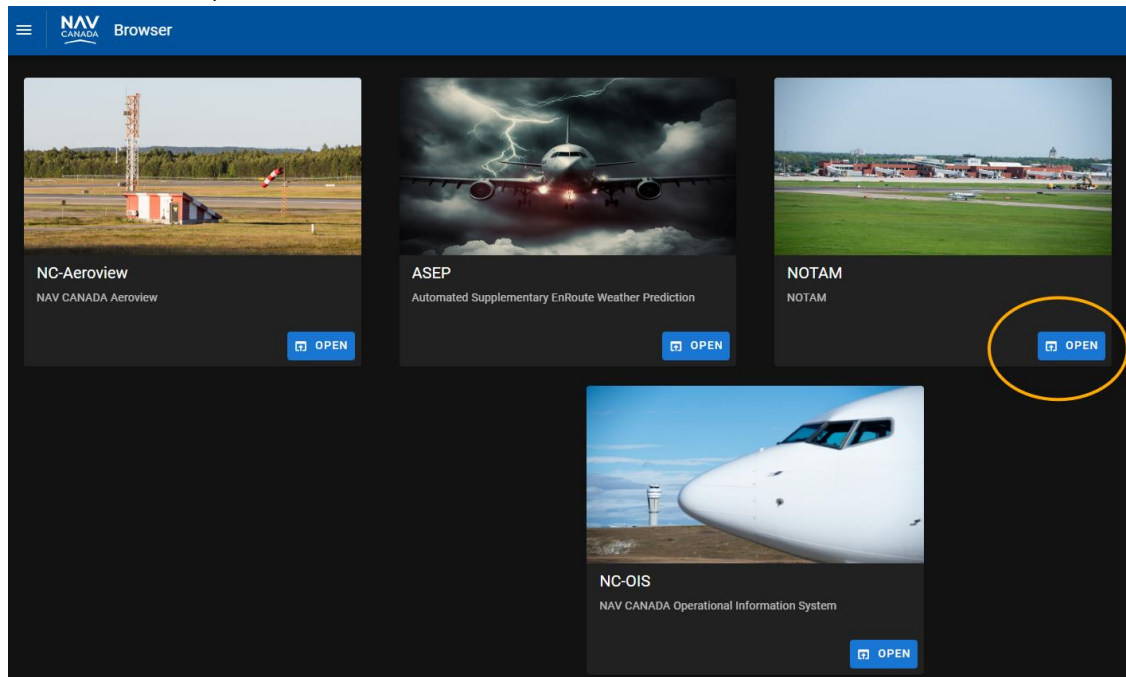


Figure: Desktop: NOTAM workspace home layout

2.2 Layout Overview

While the desktop and mobile UI are slightly different, the common elements are:

- Query form
- List output
- Map output.

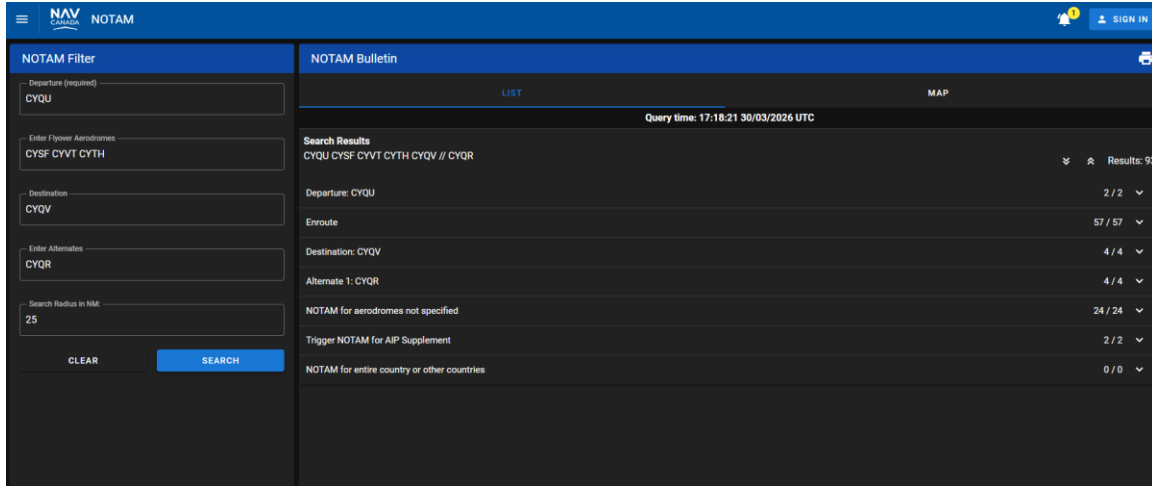


Figure: Desktop: NOTAM workspace populated query and results list

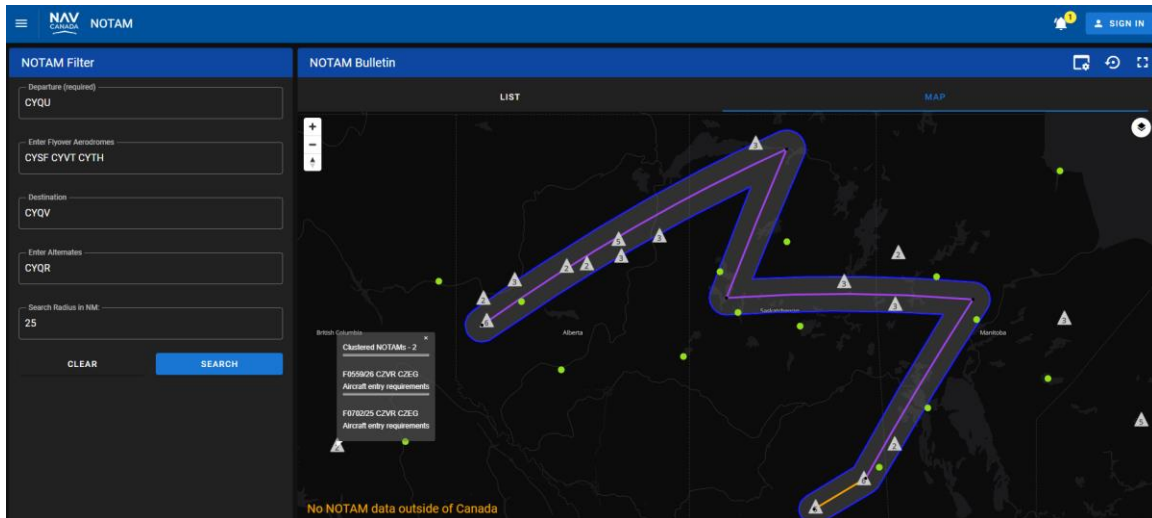


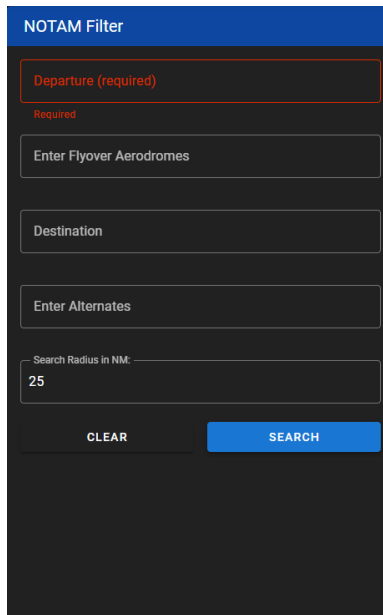
Figure: Desktop: NOTAM workspace populated query and map output

The Query form allows users to enter aerodrome identifiers and manipulate the search radius. The results list provides a common, predictable format for search results. The map output gives the users a visual representation of the NOTAM location and area of influence as it relates to the queried data.

2.3 Retrieving NOTAMs – Mobile and desktop UI

The **minimum requirement** for any NOTAM search is a **departure airport, and search radius**. A search can be extended to include destination, alternate arrival, and points enroute. The form automatically populates the Search Radius as 25NM, but users can configure the value as required.

Results around any airport will be provided for a radius of no less than 25NM even if the radius is set lower. This is a minimum requirement to assure users receive NOTAM which could affect arrival and departure phases of flight.



The image shows a mobile-style interface for a NOTAM search. It features a dark blue header with the text "NOTAM Filter". Below the header, there is a red-bordered box containing the text "Departure (required)" and "Required" in red. Underneath, there are four input fields: "Enter Flyover Aerodromes", "Destination", "Enter Alternates", and "Search Radius in NM:" (with "25" entered). At the bottom, there are two buttons: "CLEAR" and "SEARCH".

Figure: Desktop: NOTAM search form

Field Entry

Enter aerodrome identifiers in the four-character alphanumeric format. Where multiple identifiers are desired (e.g. alternates and enroute points) separate identifiers with a single space.

Alternates

Search results pertaining to an alternate will be collected from the direct route between original destination and *each* individual alternate. Where multiple alternates are queried, the user can expect to see a 'hub and spoke' depiction of multiple direct routings from the original destination.

The application does not treat multiple alternates as consecutive points on a route.

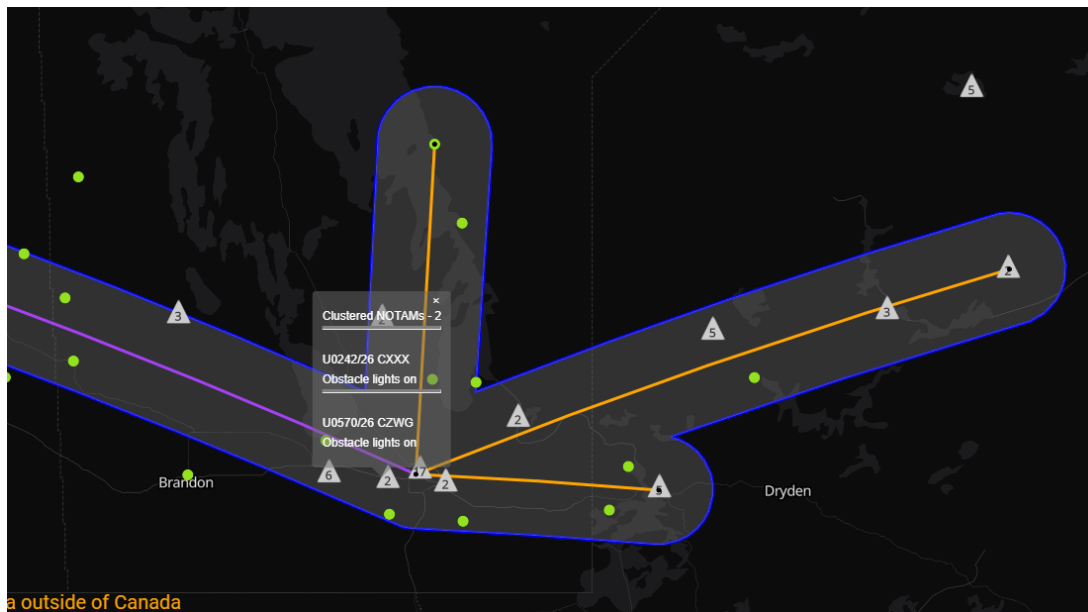


FIGURE: Alternates depicted as hub and spoke

Departure field shorthand

For quick data entry, users can enter a string of airports in the **departure field** using the following syntax.

1 – Single airport search – System treats a single identifier as a radius around the given identifier

Departure field: CYQU

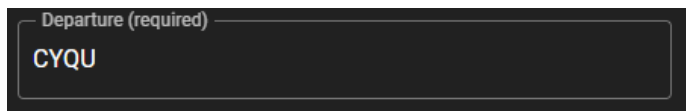


Figure: Departure field with single airport

Expected result: NOTAM within a defined radius around Grande Prairie Airport

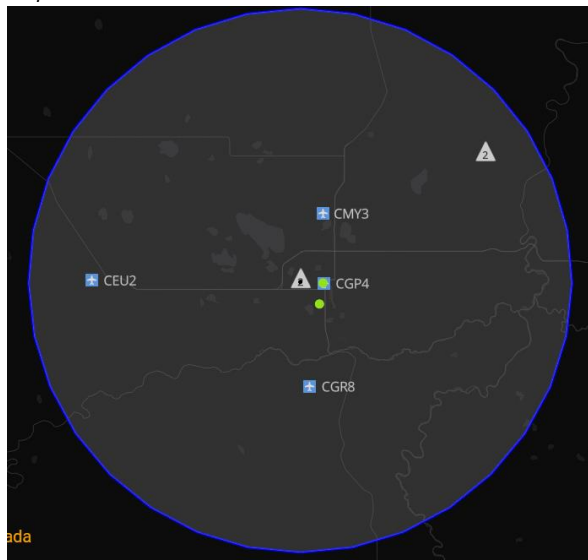


Figure: Search radius around a single airport.

2 – Departure to destination – System treats first identifier as departure and last identifier as destination

Departure field: CYQU CYTH



Figure: Departure field with single airport shorthand

Expected result: NOTAM for a route originating in Grande Prairie, AB and terminating in Thompson, MB



Figure: Point to point results output

3 – Multi-point – System treats first identifier as departure and last identifier as destination. Intermediate identifiers are treated as enroute points.

Departure field: CYQU CYSF CYVT CYQV CYTH

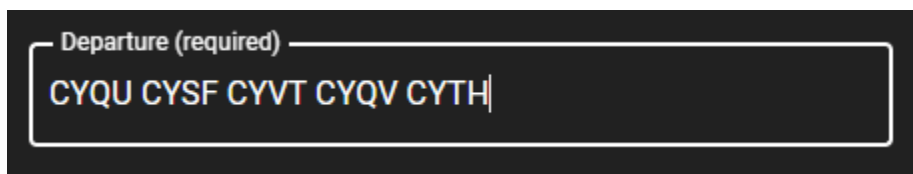


Figure: Multi-point shorthand entry

Expected result: NOTAM for a route originating in Grande Prairie, AB with stop-overs in Stony Rapids, SK, Buffalo Narrows, SK, Yorkton, SK; terminating in Thompson, MB.



Figure: Multi-point results output

4 – **Departure and destination with alternates** - System treats first identifier as departure, next identifier as destination, and identifiers after two backslashes as alternates. Also works with multiple identifiers ahead of ‘/’

Departure field: CYQU CYXE // CYQR CYQV

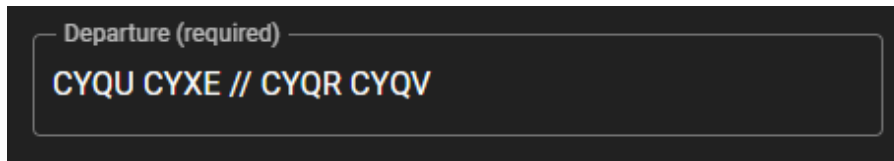


Figure: Departure and destination with alternates shorthand

Expected result: NOTAM for a route originating in Grande Prairie, AB and terminating in Saskatoon, SK with alternates of Regina, SK and Yorkton, SK.

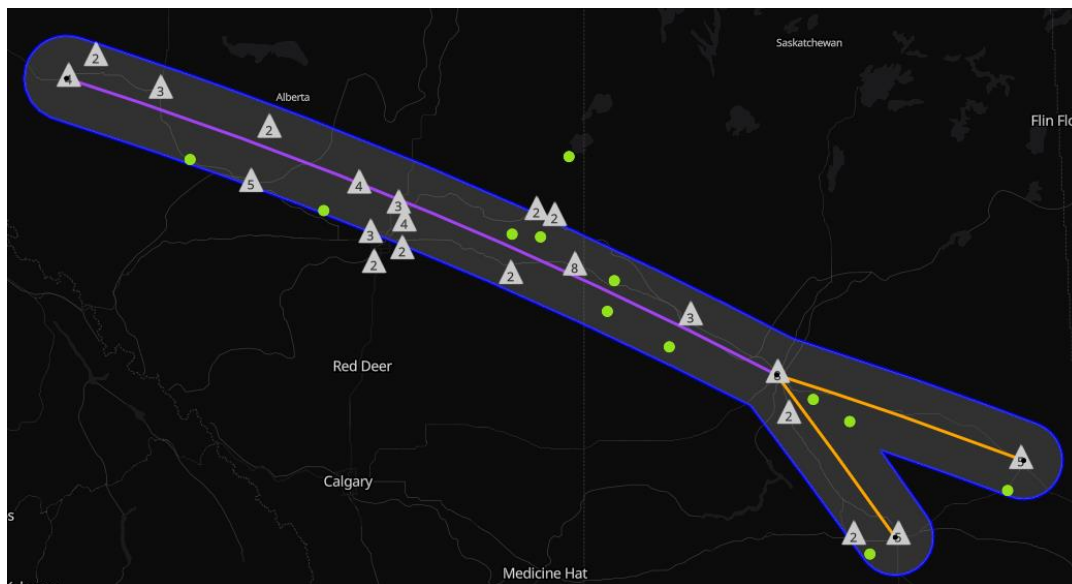


Figure: Departure and destination output

2.4 Viewing Results – Mobile and desktop UI

LIST OUTPUT

All queries will always provide results for NOTAMs whose area of influence intersects the queried route. Feedback from users suggested that a tool should prioritize NOTAM data to support more immediate concerns for operations in Canadian Domestic Airspace. To support this requirement output was split into two general areas.

Primary Results are NOTAMs which fall into the following categories:

- Aerodrome Runways/Taxiway/Aprons
- Aerodrome Facilities/Services/Lighting
- NAVAID/ILS/GNSS Systems
- Flight Procedures
- Navigation Warnings
- Communication/Surveillance
- Airspace Organization and Air Traffic Services
- Other NOTAM
- Obstacles

Ancillary Results are the remaining results, and are found in these categories:

- NOTAM for aerodromes not specified
- Trigger NOTAM for AIP Supplement
- NOTAM for entire country or other countries

Search results always present every header and always state the number of NOTAMs per category, including cases with zero results.

Results List Hierarchy:

Query results follow a predictable format based on the area of influence and Q-line. Enroute NOTAMs are broken into two divisions: those pertaining to an aerodrome specified as a waypoint and those otherwise within the defined search corridor.

NOTAMs having a scope limited to an aerodrome and pertaining to an aerodrome not specified as a waypoint are grouped under the “NOTAM for aerodromes not specified” header.

Search Results	
CYQU CYXE // CYQR // CYQV	Results: 109
Departure: CYQU	2 / 2
Enroute	67 / 67
Destination: CYXE	7 / 7
Alternate 1: CYQR	4 / 4
Alternate 2: CYQV	4 / 4
NOTAM for aerodromes not specified	23 / 23
Trigger NOTAM for AIP Supplement	2 / 2
NOTAM for entire country or other countries	0 / 0

- **DEPARTURE AERODROME**
 - o CATEGORY HEADERS
- **ENROUTE**
 - o ***ENROUTE AERODROME***
 - CATEGORY HEADERS
 - o ***ENROUTE CORRIDOR***
 - CATEGORY HEADERS
- **DESTINATION**
 - o CATEGORY HEADERS
- **ALTERNATES**
 - o CATEGORY HEADERS
- **NOTAM for aerodromes not specified**
 - o CATEGORY HEADERS
- **TRIGGER NOTAM for AIP Supplement**
 - o CATEGORY HEADERS
- **NOTAM for entire country or other countries**
 - o CATEGORY HEADERS

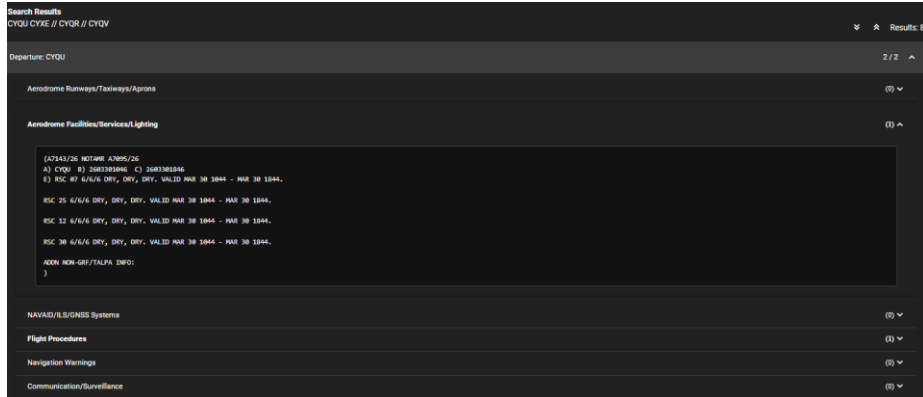


Figure: List results

Results will always display any NOTAM whose area of influence intersects the 25 nautical mile radius of an aerodrome within a query. User-defined search corridors are applied to any segment between individual aerodromes.

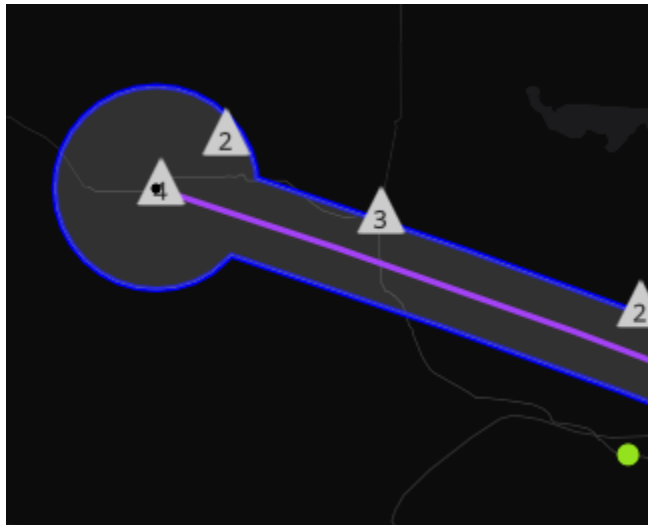


Figure: Map output – Search Radius set to 10NM providing 25NM at departure aerodrome.

Results Language

NOTAM data will be provided to the user in accordance with the NC-SPACES UI setting only if the NOTAM has been made available in English and French at the sources. In cases where a NOTAM has only been published in English, at the source, the English text will be provided in the French UI.

Obstacles

(E1472/26 NOTAMN
 A) CYOW B) 2602252009 C) PERM
 E) AMEND PUBLICATIONS: MOBILE CRANE WITHIN 260FT RADIUS CENTRED ON
 452412N 0753907W (APRX 4.9NM NNE AD (CYOW)). 380FT AGL 647FT
 AMSL. LGTD, NOT PAINTED.)

(E0606/26 NOTAMR E6584/25
 A) CYOW B) 2601281239 C) 2604292359EST
 E) TOWER CRANE WITHIN 247FT RADIUS CENTRED ON 451954N 0754033W ABEAM
 THR 22 AND 2280FT SE RCL. 107FT AGL 486FT AMSL. LGTD, NOT
 PAINTED.)

FIGURE: Bilingual NOTAM data available in English UI

Obstacles

(E1472/26 NOTAMN
 A) CYOW B) 2602252009 C) PERM
 E) MODIFIEZ PUBLICATIONS: GRUE MOBILE DANS UN RAYON DE 260FT CENTRE
 452412N 0753907W (APRX 4.9NM NNE AD (CYOW)). 380FT AGL 647FT
 AMSL. LGTD, NON PEINTE.)

(E0606/26 NOTAMR E6584/25
 A) CYOW B) 2601281239 C) 2604292359EST
 E) GRUE A TOUR DANS UN RAYON DE 247FT CENTRE 451954N 0754033W PAR LE
 TRAVERS THR 22 ET 2280FT AU SE DE RCL. 107FT AGL 486FT AMSL.
 LGTD, SANS PEINTURE.)

FIGURE: Bilingual NOTAM data available in French UI

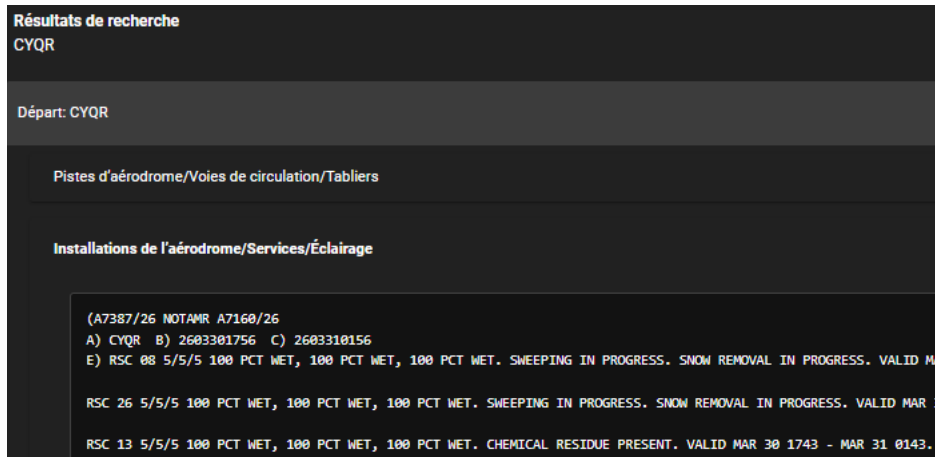


FIGURE: Bilingual data not available with French UI

2.5 Results List Controls

To maintain an organized and predictable output, users have limited control over the data in the LIST output. This ensures that the results are always presented with a common format, look, and feel.

Controls:

Controls are depicted as chevrons / double chevrons pointing up or down.



Single chevrons are for the expansion/ collapse of a single header.

Double chevrons control the expansion/ collapse of **all** headers.

2.6 Export / Printing

After completing a query, users can print the results. Select the printer icon in the top right of the UI to open the device's printer interface.



The printed results will have a header which contains the time that the query was conducted in UTC. If a user chooses to export results to a file such as .pdf, the default filename will be:

SPACES – NOTAM.pdf

It is the user's responsibility to change filenames to prevent overwriting previously saved results when saved to a device.

Note: All headers containing NOTAM data will be fully expanded

2.7 Map Display Mobile and desktop UI

General

Users can switch the UI to the map display after completing a query, by selecting the 'MAP' tab on the right of the output area.

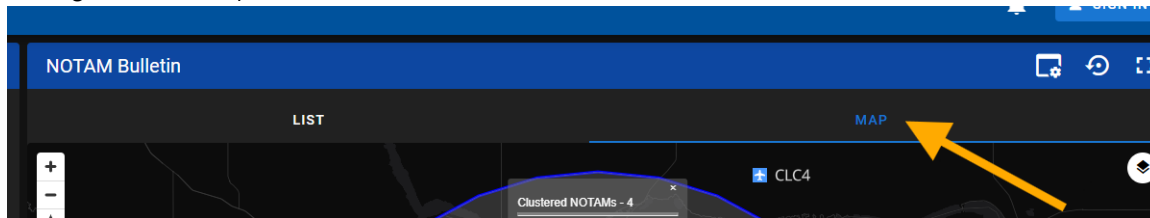


Figure: Location of map toggle

The map UI has familiar controls for typical mapping applications. Users can rotate, zoom, and pan the map using gestures, mouse movements, or control icons on the UI.

At the top of the map UI there are three controls which open a settings drawer, reset map view, and trigger full-screen mode.

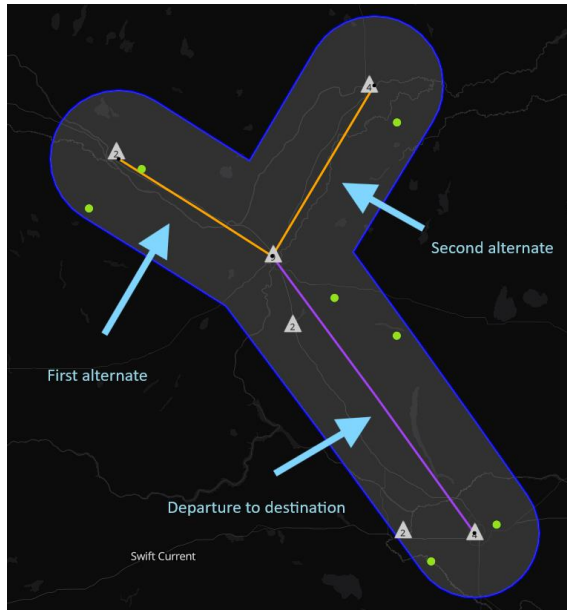


The layers button opens a drawer which permits a terrain layer and/or other layers available to be added to the map.



Search Results

The search corridor from departure to destination is depicted by a series of purple line segments. The corridor from destination to any alternate is depicted by a gold segment joining the destination and alternate via the most direct individual path. Multiple alternates will appear like a hub and spokes.



Icons and shapes

The width of the search corridor is reflected as a blue outline around the corridor, fixed at the user-defined radius. Airports included in the search will always show a minimum 25NM radius.

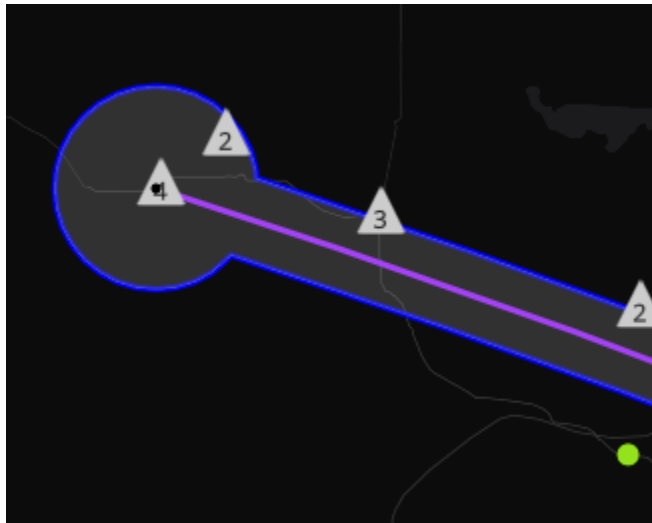
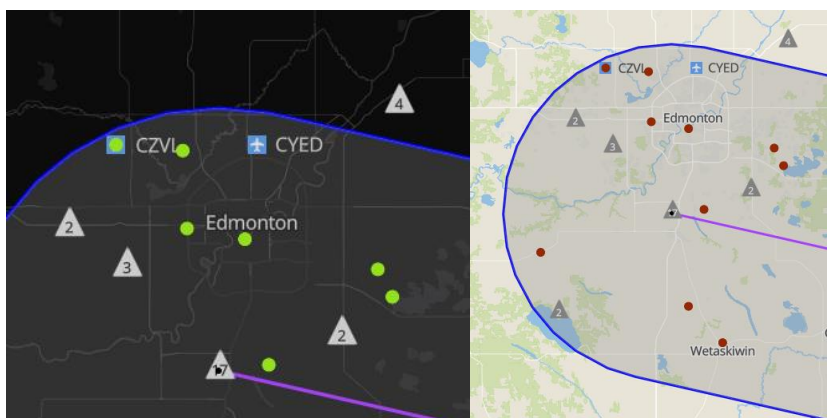


Figure: Reduced enroute radius with 25NM output in vicinity of aerodrome.

In the map view a single NOTAM is depicted by a colored dot. The color contrasts with the UI setting for dark/light mode.

Grouped NOTAM are shown in a triangle with a number stating how many NOTAMs per group.



The map bears an advisory that there is 'No NOTAM data outside of Canada'. Users are responsible for briefing themselves for airspace outside of Canadian Domestic Airspace.

3. Mobile User Guide

3.1 Accessing the workspace (Mobile)

On a mobile device scroll to the NOTAM workspace and touch the workspace card.

NC-SPACES offers a list button (sometimes referred to as a hamburger button) to provide the list of workspaces. To navigate from another workspace to the NOTAM workspace, click the list button and select the appropriate application.

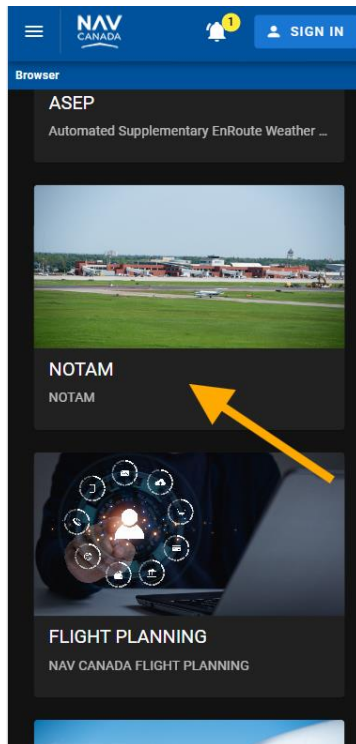


Figure: Mobile: NOTAM Card

3.3 Viewing NOTAM List (Mobile)

On mobile devices, the UI offers buttons for expanding and collapsing all headers. There is also a 'Quick Find' option, and an option to re-open the query.

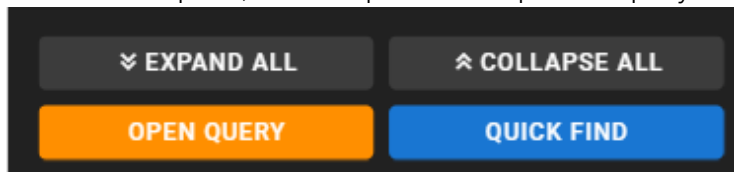


Figure: Mobile controls for List results

With several headers expanded, users may have to scroll significant distances on mobile devices. The “Quick Find” allows users to jump to a header without excessive scrolling or having to collapse expanded headers.

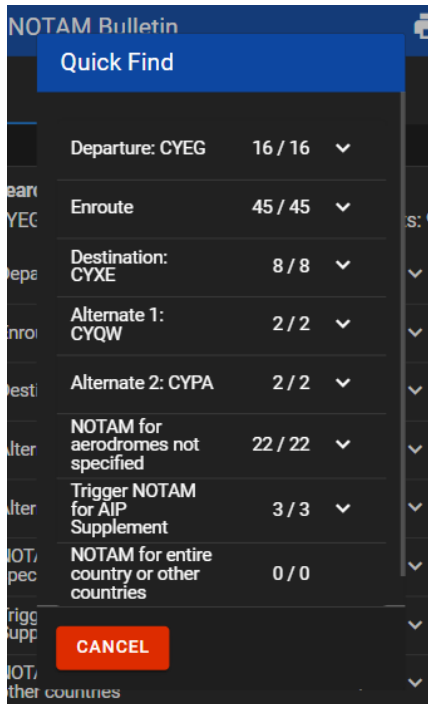


Figure: Quick Find window

Select the ‘Quick Find’ button and select the appropriate header for the information you seek. The UI will automatically scroll there and expand the header.

3.6 Map Display (Mobile)

The map display provides a similar look and feel to most map applications one may use on their mobile devices. Common gestures such as swiping, twisting, and zoom gestures will adjust the UI in a predictable way.

NOTAM will be displayed as either a single-colored dot, indicating a single NOTAM, or a grey triangle containing the number of NOTAM in a cluster.

A tap on a dot will open the NOTAM text over the map UI for quick reference. Tapping on the ‘X’ control will close the NOTAM.

Tapping on a cluster triangle will invoke a small scrollable list of NOTAM pertinent to the vicinity of the cluster icon.

Selecting from the list will open the NOTAM text.

Closing the NOTAM will return the user to the cluster list. Tapping outside the cluster list will close the list.