



# NavView User Guide – 19 Exclusion Zones

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## 19. EXCLUSION ZONES

Exclusion Zones in NavView are regions which entry is forbidden or restricted that is defined by the user. Entry into is continuously monitored. Should a selected objects enter an exclusion zone, an audio and visual alert is triggered on all stations on the network which have the module enabled.

If Roles and Privileges are enabled, a user must be logged in as Online, Supervisor or Administrator to configure Exclusions Zones.

### 19.1 MANAGING EXCLUSION ZONES

Exclusion Zones are managed from the Exclusion Zones window in the Setup ribbon, see Figure 19-1. This includes the basic configuration, selection of dynamic objects to monitor, definition of the exclusion zones (regions) and how to display the exclusion zones and the associated alerts graphically in 2D Map views.

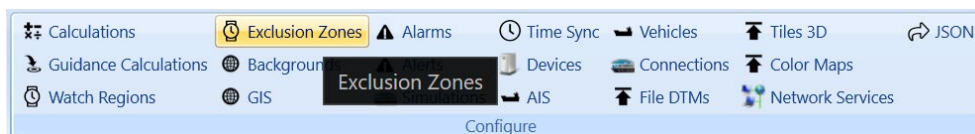


FIGURE 19-1 SETUP RIBBON – EXCLUSION ZONES

#### 19.1.1 EXCLUSION ZONES CONFIGURATION

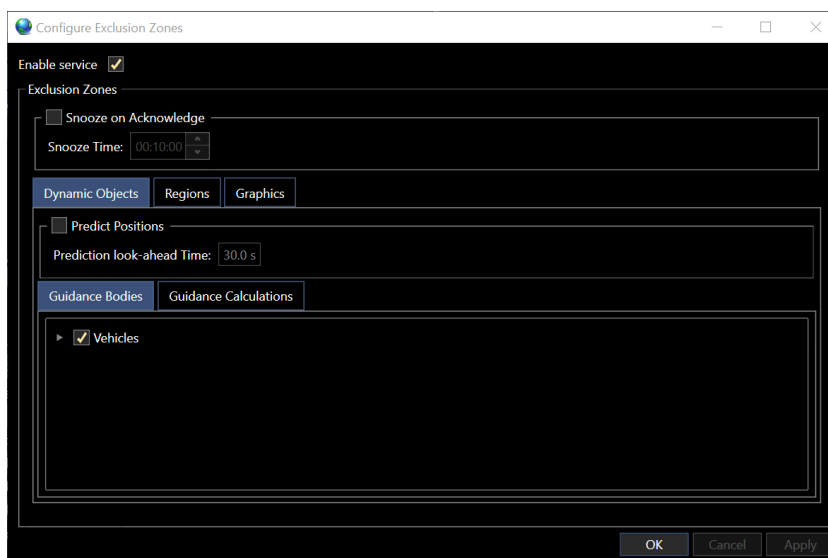


FIGURE 19-2 CONFIGURE EXCLUSION ZONES WINDOW

These settings control the basic operation of exclusion zone monitoring.

- **Enable service:** Check to enable service
- **Snooze on Acknowledge:** Allows the user to set a time limit value where alerts will not be re-generated, e.g., if a vehicle enters an exclusion zone and an alert is triggered and acknowledged then leaves the exclusion zone. If the vehicle re-enters the exclusion zone within a specified period (Snooze Time), an alert is not

generated but the zone region is highlighted graphically in 2D Map. Check the box to enable this feature

### 19.1.1.1 DYNAMIC OBJECTS TAB

Select those objects that are to be monitored for entry into exclusion zones.

- Predict Positions:** Enable/disable application of predictive positioning in exclusion zone monitoring

If prediction is enabled, the system will use the velocity of a dynamic object to predict its future position based on the defined time. If any point on the line between the current position and future position intersects an exclusion zone, a warning will be generated

- Guidance Bodies Tab:** Select the Guidance Bodies (Vehicles) that are to be monitored

The Exclusion Zone service uses an opt-out setup. This means that when a new Vehicle is added to the project it and all its Static Offsets are tracked as a guidance body by default, and if one ventures inside any of the regions, an alert will be triggered. To disable monitoring of a specific vehicle, go to the Guidance Bodies tab and uncheck it from the hierarchical list, see Figure 19-3.

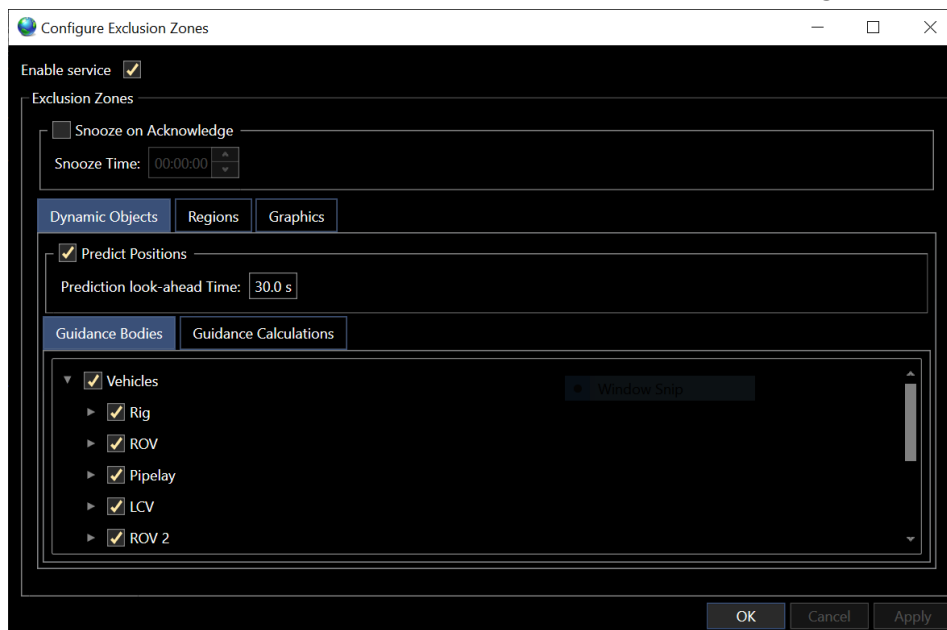


FIGURE 19-3 Configure Exclusion Zones - GUIDANCE BODIES TAB

**Note:** If a body has many static offsets, and they are all left on, then when it enters a region, the system will generate several alerts, one for each offset.

**Note:** If a vehicle offset or guidance calculation will be used as a region, it should be disabled in the Guidance Body tab, so it doesn't generate an alarm from itself.

- **Guidance Calculations Tab:** Select Guidance Calculations to be monitored  
The Exclusion Zone service uses an opt-out setup. This means that when a guidance calculation is added to the project it is tracked as a guidance calculation by default. In the case of guidance calculations, if the line between the From and the To objects of the calculation pass through any of the exclusion zones, an alert will be triggered. To not track an item, go to the Guidance Body tab and uncheck it from the hierarchical list (see Figure 19-4).

**Note:** The guidance calculation itself must have Network Shared enabled for it to be available in the Guidance Calculations tab.

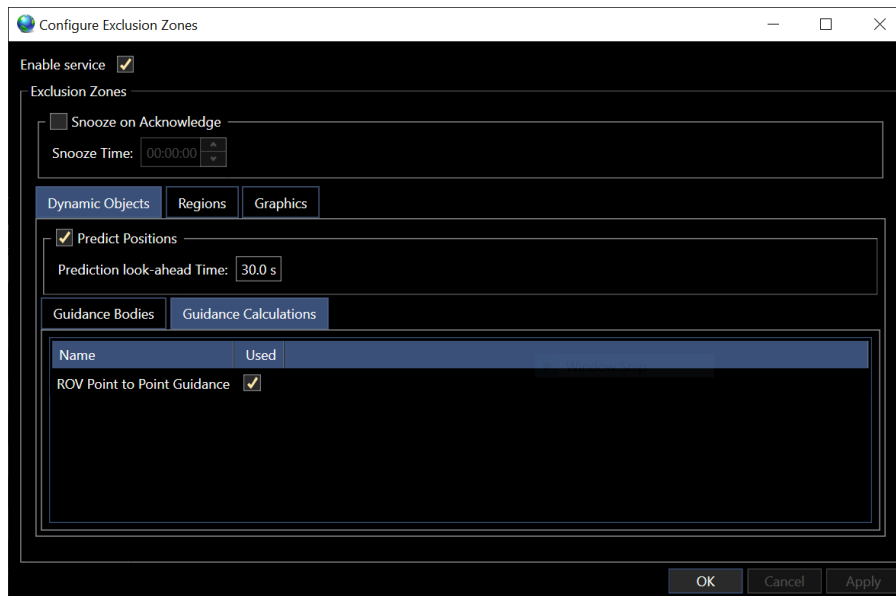


FIGURE 19-4 Configure Exclusion Zones - GUIDANCE CALCULATIONS TAB

### 19.1.1.2 REGIONS TAB

A Region defines the exclusion zone that an object is not allowed to enter. Regions can be created from Static coordinates, a Dynamic Body or a Dynamic Line. Regions are added from the Configure Exclusion Zones window, see Figure 19-5, or directly from a 2D Map view.

**Note:** In the case of adding a region from a 2D Map, spatial geometries can be created using the Point Picker and Multi-Point Picker tools and by right mouse clicking on any of the background polylines (GIS, AutoCAD, etc.) and converting these to a region.

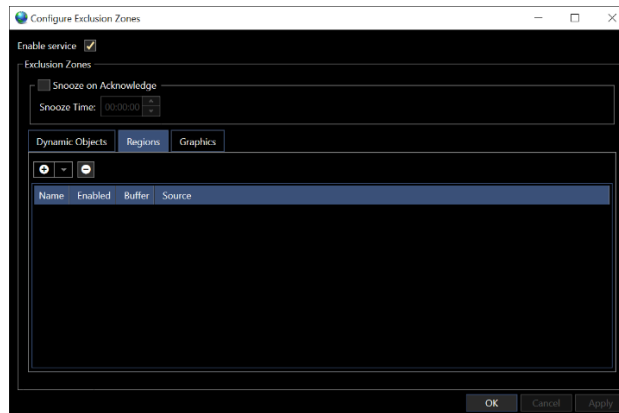



FIGURE 19-5 CONFIGURE EXCLUSION ZONES – REGIONS TAB

### 19.1.1.2.1 STATIC REGION

A non-moving region. This can be added from the Configure Exclusion Zone window or directly from a 2D Map.

1. Create a Static Region from Configure Exclusion Zone Configuration window.
  - a. Click on the  to select the region type to create, see Figure 19-6

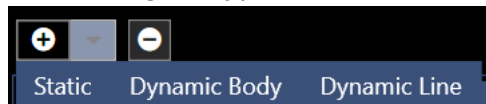


FIGURE 19-6 CONFIGURE EXCLUSION ZONES - REGION TYPES

- b. Select the **Static** option from the Add button expansion menu. This will add a new geometry item to the list with a default buffer and empty geometry. The geometry field can then be edited, see Figure 19-7

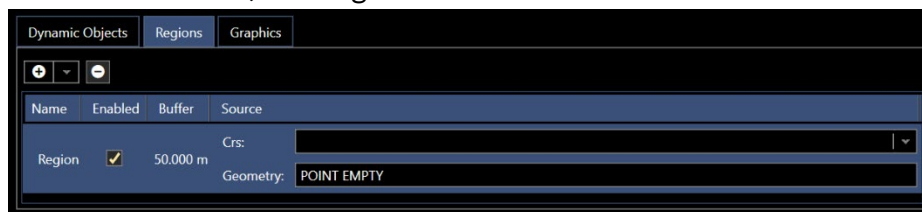


FIGURE 19-7 STATIC REGION

- c. **Name:** Enter a suitable name for the region
  - d. **Enabled:** Use this function to turn on/off alerts associated with the region
  - e. **Buffer:** Distance around a line or point used for the region geometry
  - f. **Source:** Clicking in the Source cell causes it to expand to display
    - i. **CRS:** Select the Coordinate Reference System of the static geometry data, see Figure 19-8
    - ii. **Geometry:** Enter or copy the geometry defining the region in Well-Known-Text (WKT) format, see Figure 19-8

**Note:** Well-known text (WKT) is a text markup language for representing vector geometry objects. See [Well-Known Text \(WKT\) | GEOS \(libgeos.org\)](http://Well-Known Text (WKT) | GEOS (libgeos.org))

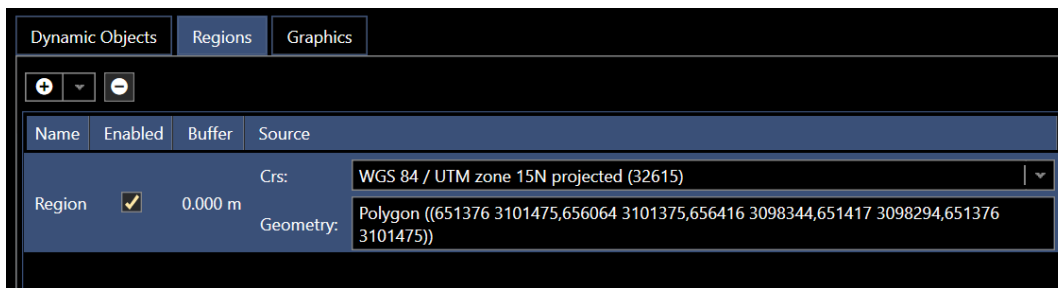




FIGURE 19-8 CONFIGURE EXCLUSION ZONES – STATIC REGION – SOURCE DATA

2. Create a Static Region from a 2D Map view.

This approach uses either the single point picker , the multi point picker , or the capability to select a polyline from a background layer. The single point picker will define an area based on a radius around a single point, while the multi point picker allows the user to create more complex geometry. This process will generate the geometry in WKT format and apply it to define the region.

a. **Point Picker Tool**

- i. To set up a region based on a single point, select the point picker on the Map view. Click in the desired location on the map. Then right click on the point which has been created, and select copy to-> Exclusion zones, see Figure 19-9



FIGURE 19-9 COPY SINGLE STATIC POINT TO EXCLUSION ZONE

- ii. In the resulting dialog, see Figure 19-10
  - **Name:** Enter a suitable name for the region
  - **Buffer Distance:** Enter the distance to apply to the point to create the region

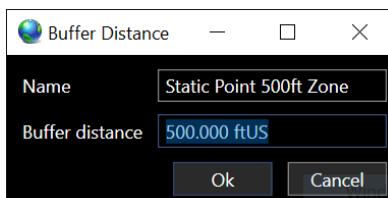


FIGURE 19-10 STATIC SINGLE POINT REGION DIALOG

- iii. The shape will then appear on the map view, see Figure 19-11, and will be added to the regions list in the exclusion zone configuration window, see Figure 19-12

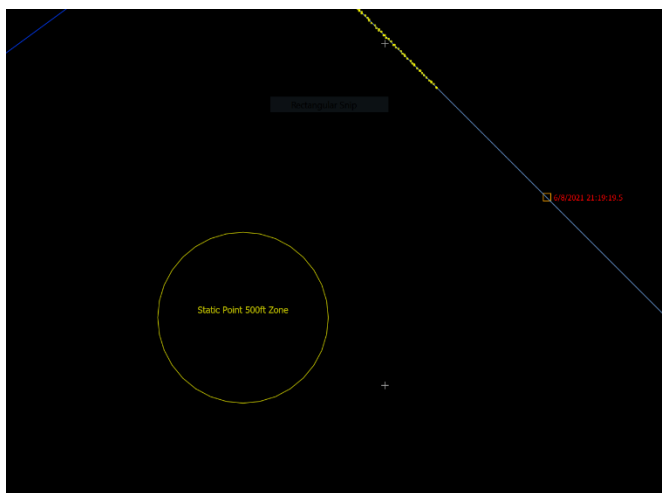


FIGURE 19-11 STATIC SINGLE POINT REGION – MAP VIEW

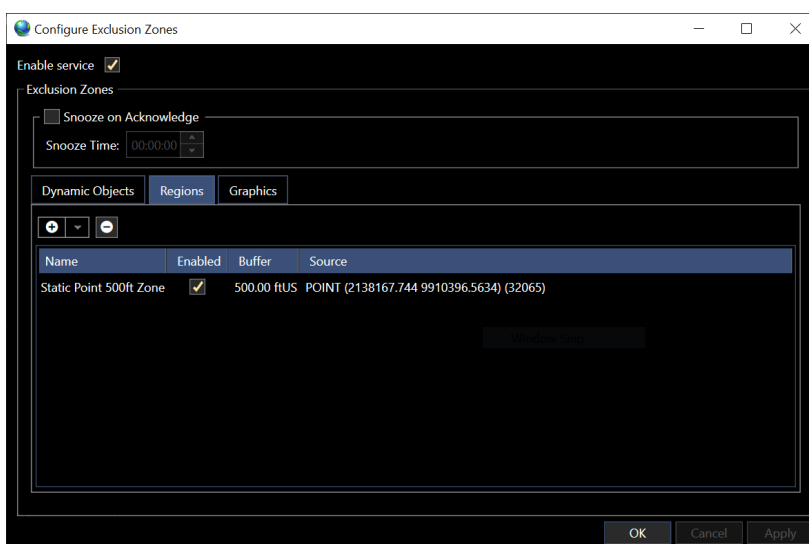


FIGURE 19-12 STATIC SINGLE POINT ADDED – CONFIGURATION WINDOW

**b. Multi-Point Picker Tool**

The Multi-Point picker is used to create more complex regions.

- i. Select the Multi-Point picker on the map toolbar then select 2 or more points on the map. If only two points are selected, only a line based region will be created. If more than 2 points are selected, a line or polygon based region can be created. Then right click on the line(s) which have been created, and select copy to-> Exclusion zones, see Figure 19-13



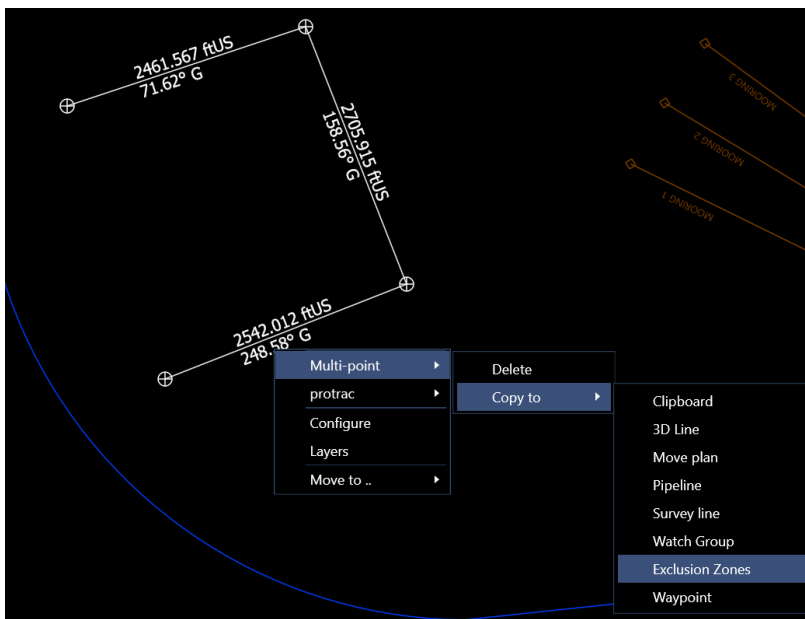


FIGURE 19-13 COPY STATIC MULTI-POINT TO EXCLUSION ZONE

- ii. In the resulting Create Region dialog, see Figure 19-14
  - **Name:** Enter a suitable name for the region
  - **Region Type:** From the drop down control, select if the region is to be:
    - **Polygon:** If the selected polyline does not form a polygon itself, NavView will connect the end points to create a polygon. The buffer will be applied to the outside of the polygon to form the region

**Note:** If the multi-point picker line has only 2 nodes and the Region type selected is Polygon, NavView will throw an error and abort the creation of the region.

- **Line:** The buffer will be applied to the polyline to create the region
- **Buffer Distance:** Enter the distance to apply to the line/polygon to create the region

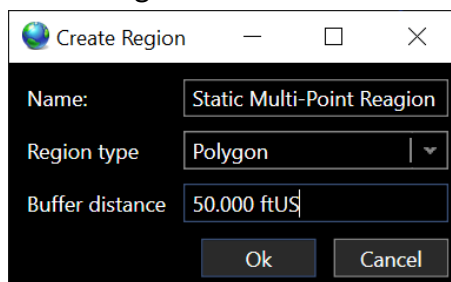


FIGURE 19-14 STATIC MULTI-POINT CREATE REGION DIALOG

- iii. The shape will then appear on the map view, see Figure 19-15, and will be added to the regions list in the exclusion zone configuration window, see Figure 19-16



FIGURE 19-15 STATIC MULTI-POINT REGION – MAP VIEW

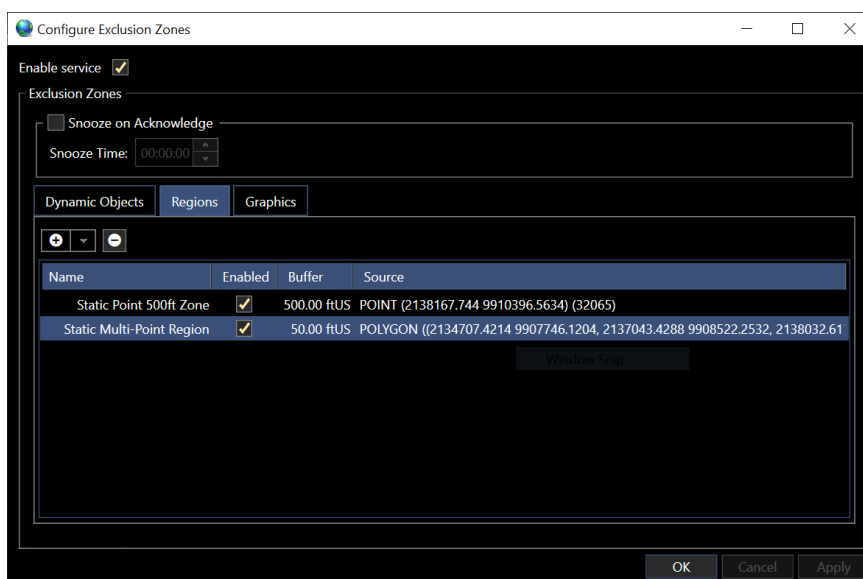


FIGURE 19-16 CONFIGURE EXCLUSION ZONES - STATIC MULTI-POINT

**c. Background Polyline**

- i. Right mouse click on a background polyline in the 2D Map view and select **Convert to > Exclusion Zone** as shown in Figure 19-17

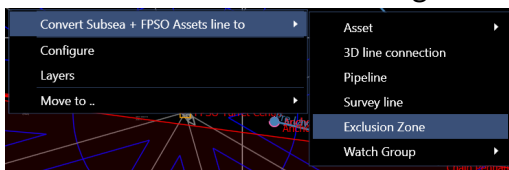


FIGURE 19-17 CONVERT POLYLINE TO EXCLUSION ZONE

- ii. In the resulting Create Region dialog, see Figure 19-18
  - **Name:** Enter a suitable name for the region
  - **Region Type:** From the drop down control, select if the region is to be:
    - **Polygon:** If the selected polyline does not form a polygon itself, NavView will connect the end points to create a polygon. The

buffer will be applied to the outside of the polygon to form the region

- **Line:** The buffer will be applied to the polyline to create the region
- **Buffer Distance:** Enter the distance to apply to the line/polygon to create the region

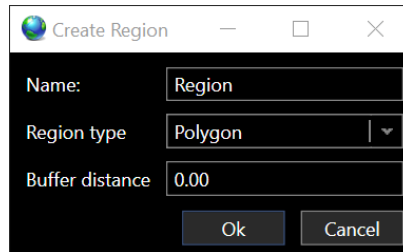


FIGURE 19-18 CREATE REGION DIALOG

III. Click **Ok**. The region will appear on the map view and will be added to the regions list in the exclusion zone configuration window

### 19.1.1.2.2 DYNAMIC BODY REGION

A region based on a dynamic body, such as a vehicle offset. Region will be a buffer circle around vehicle offset which will move with the dynamic body. This can only be added directly from the Configure Exclusion Zone window.

1. Select Dynamic Body region, see Figure 19-19.

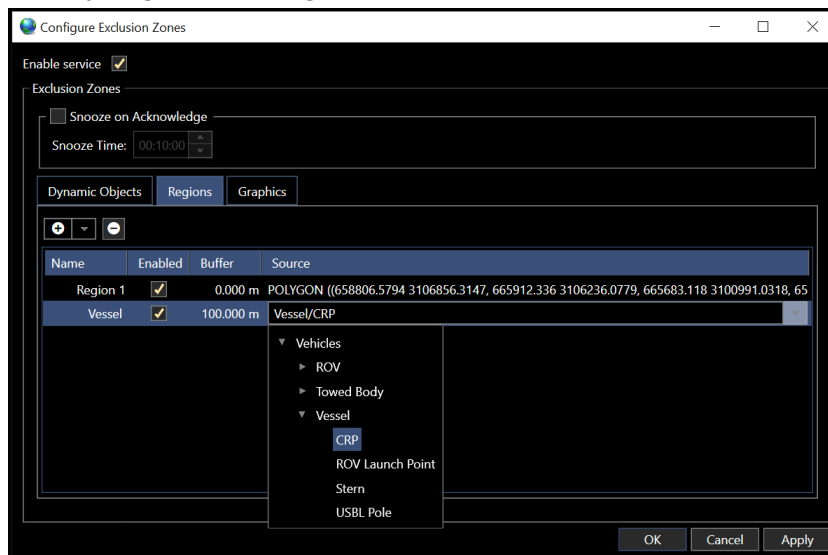


FIGURE 19-19 CONFIGURE EXCLUSION ZONES - DYNAMIC BODY

- **Name:** Enter a suitable name for the region
  - **Buffer:** Enter a buffer distance to be applied around the Dynamic Body
  - **Source:** From the Source column, select the data source from the vehicles and their offsets
2. The image below shows a 100m region around a vessel. This shape will continuously update and move with the vessel, see Figure 19-20.

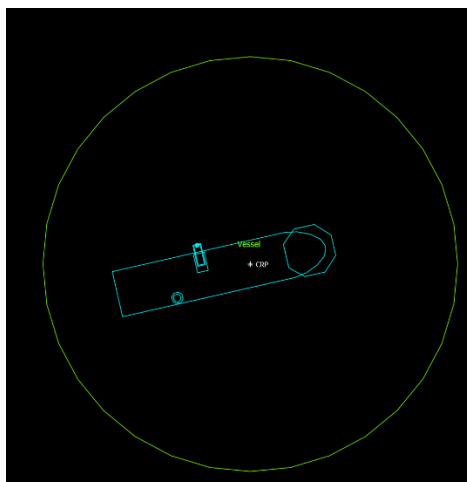


FIGURE 19-20 DYNAMIC BODY REGION - MAP VIEW

**Note:** To avoid the Dynamic Body alarming on itself deselect the body in the Dynamic Objects tab and any guidance calculations associated to the body in the Guidance Calculations tab.

### 19.1.1.2.1 DYNAMIC LINE REGION

Dynamic line regions allow for regions created from either guidance calculations or straight line connections in NavView. These regions can be added from the Exclusion Zone Configuration window or from a 2D Map.

3. Creating a Dynamic Line Region from the Configure Exclusion Zones window.
  - a. Select Dynamic Line type in the Regions tab, see Figure 19-21

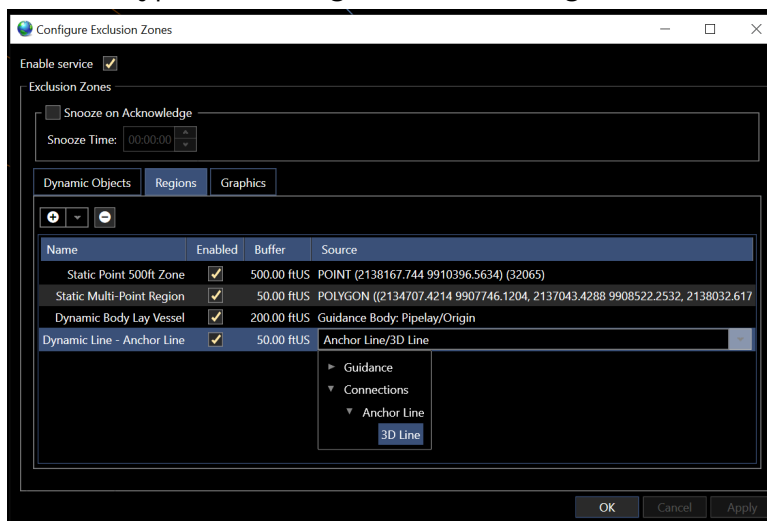


FIGURE 19-21 CONFIGURE EXCLUSION ZONES - DYNAMIC LINE

- **Name:** Enter a suitable name for the region
- **Buffer:** Enter a buffer distance to be applied around the Dynamic Line
- **Source:** Select the desired dynamic line from the drop down list of available dynamic lines such as Guidance Calculations or 3D Line Connections

- b. The image below shows a 50ft region around an anchor line. This shape will continuously update and move with the platform, see Figure 19-22

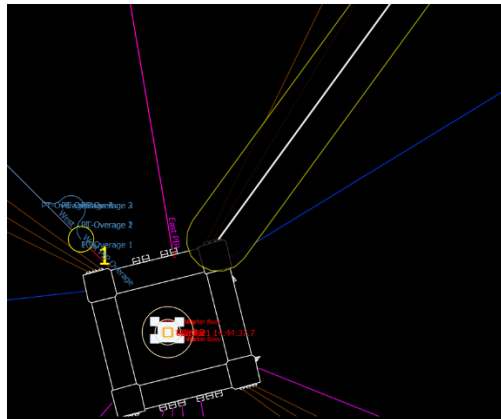


FIGURE 19-22 DYNAMIC LINE REGION – MAP VIEW

4. Create a Dynamic Line Region from a 2D Map view.

**Note:** The graphics must be turned on for a guidance calculation for it to be available in the 2D Map view for selection.

- a. Right click on the guidance calculation line and select the Exclusion/Watch Regions: [Name of Guidance calculation]-> Create New Exclusion Zone with: [Name of Guidance Calculation] option to create a new exclusion zone

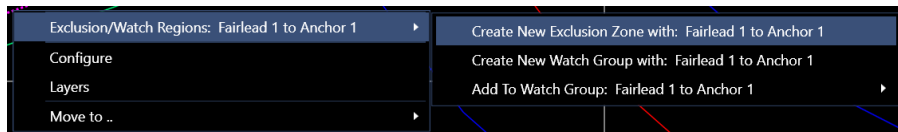


FIGURE 19-23 CREATE DYNAMIC LINE EXCLUSION ZONE FROM 2D MAP

- b. The region will be added to the Configure Exclusion Zone window Regions list with the default name Line: [Name of Guidance Calculation] and a buffer distance of 50m which can be edited from this window

19.1.1.3 GRAPHICS TAB

This provides a standard graphics configuration view to configure the look of a non-triggered area and a triggered one, see Figure 19-24.

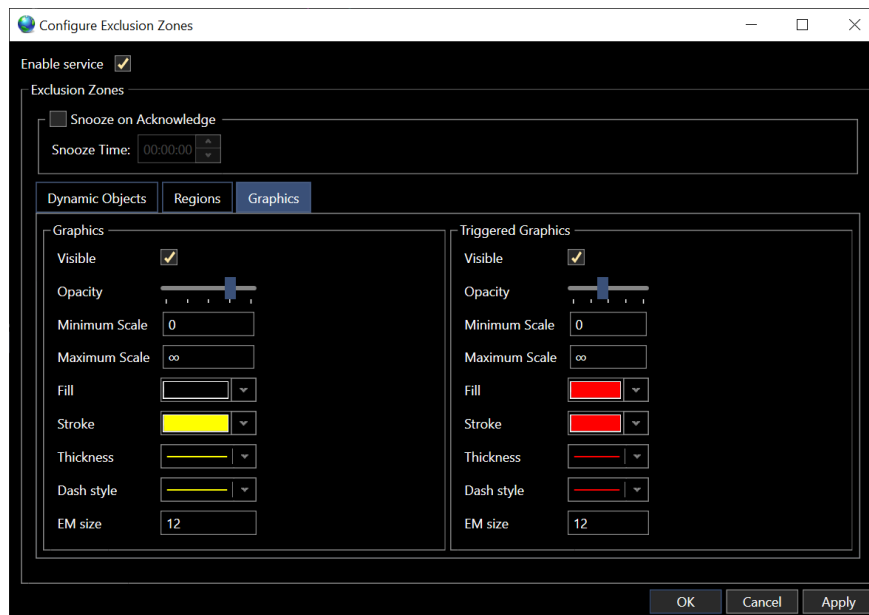


FIGURE 19-24 CONFIGURE EXCLUSION ZONES - GRAPHICS TAB

- **EM:** Size of exclusion zone label

## 19.2 MONITORING EXCLUSION ZONE ALERTS

Alerts can be monitored visually on the map view and the Alert list window.

### 19.2.1 MAP VIEW

When a Dynamic Object intersects or goes inside an exclusion zone region, an alert will be triggered. When an alert is triggered, the graphics for the region on the map view, see Figure 19-25, will change to match the settings in Triggered Graphics, see Figure 19-24.

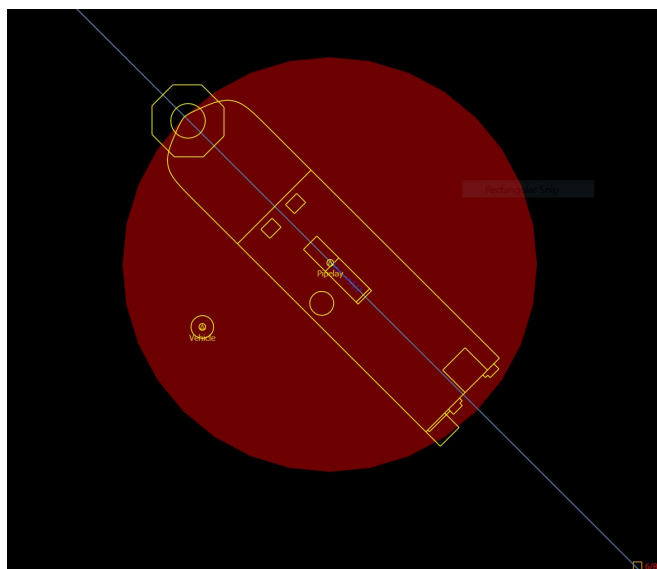


FIGURE 19-25 ALERT TRIGGERED - MAP VIEW

## 19.2.2 ALERT LIST WINDOW

The alert list window, see Figure 19-27, is accessed from the View ribbon, see Figure 19-26. If this window is not open when an Alert is triggered, it will automatically open.



FIGURE 19-26 ALERTS – VIEW RIBBON

Type	Time	Event	Time cleared	Time Acknowledged	State	Module
Warning	9-26-2021 15:02:25.7	Origin Prediction is inside of Dynamic Body Lay Vessel	--	9-26-2021 15:09:48.1	Acknowledged	Exclusion Zone
Warning	9-26-2021 15:02:25.7	Vehicle Prediction is inside of Dynamic Body Lay Vessel	--	9-26-2021 15:09:44.4	Acknowledged	Exclusion Zone
Warning	9-26-2021 13:53:35.2	Drill Ship Prediction is inside of Dynamic Body Lay Vessel 1	9-26-2021 13:57:23.5	9-26-2021 15:09:37.3	Cleared, Acknowledged	Exclusion Zone
Warning	9-26-2021 13:53:35.2	Origin Prediction is inside of Dynamic Body Lay Vessel 1	9-26-2021 13:57:23.5	9-26-2021 15:09:41.3	Cleared, Acknowledged	Exclusion Zone
Warning	9-26-2021 13:41:48.0	Vehicle Prediction is inside of Dynamic Body Lay Vessel	9-26-2021 13:42:40.8	9-26-2021 15:09:38.7	Cleared, Acknowledged	Exclusion Zone
Warning	9-26-2021 13:41:48.0	Pipelay Prediction is inside of Dynamic Body Lay Vessel	9-26-2021 13:42:04.1	9-26-2021 15:09:42.9	Cleared, Acknowledged	Exclusion Zone

FIGURE 19-27 ALERTS WINDOW

The Alerts table columns are as follows:

- **Type:** The type of alert icon (error, warning or information)
- **Time:** Time the event occurred
- **Event:** Message text of the event
- **Time Cleared:** Time Cleared, or '--' if it has not been cleared yet
- **Time Acknowledged:** Time Acknowledged, or '--' if it has not been acknowledged yet
- **State:** Indicates if the alert is cleared, acknowledged or still active
- **Module:** The alert list can handle alerts and information from other NavView modules, so the source of the alert is shown here
- **Top Buttons:** The buttons at the top of the alert window allow the user to filter what is displayed in the list, whether that be only errors, both errors and warnings, for information. It is also possible to filter out acknowledged items so only the most important information is shown

**Note:** Alerts/Alarms triggered are published to all stations on the network when triggered and not exclusive to a single station.

## 19.2.3 ALERT LIST CONFIGURATION


The  button is used to open the alert list configuration dialog. The alert list configuration view controls the display of popup messages, as well as sound, see Figure 19-28.



FIGURE 19-28 ALERT LIST - CONFIGURE ALERT DISPLAY DIALOG

- Play Sound:** The sound options include a variety of sounds to choose from for when an alert occurs. The alerts sounds in NavView uses Windows system sounds, which allows it to leverage some added accessibility features in Windows 10.

**Note:** For added notification in case the system sound is turned off or speakers are unavailable, Windows 10 has a feature in system settings called 'Show visual alerts for audio notifications' which can be found by searching via the Start Menu, see Figure 19-29 and Figure 19-30.

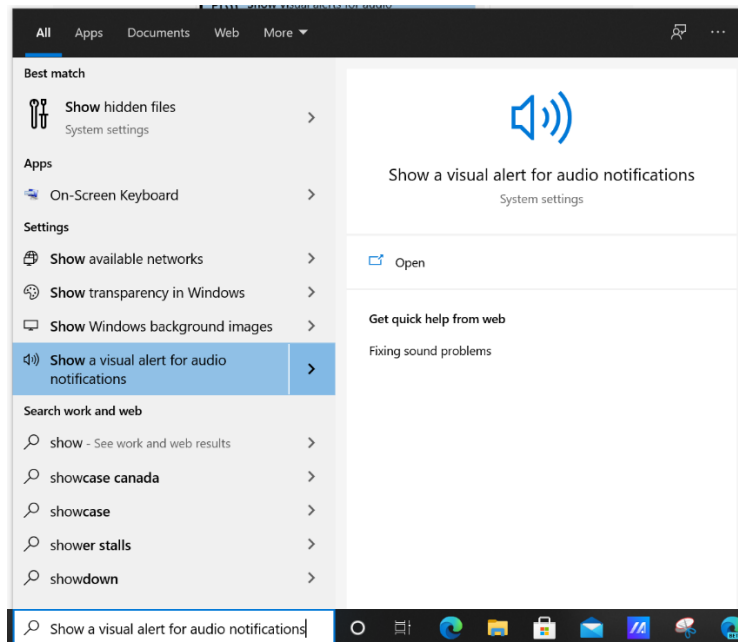


FIGURE 19-29 SHOW VISUAL ALERTS - WINDOWS 10



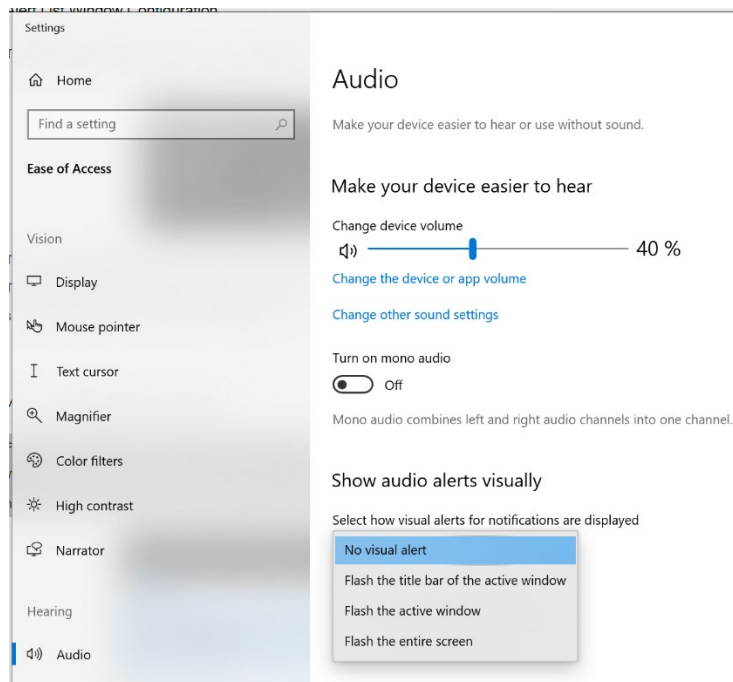


FIGURE 19-30 SHOW VISUAL ALERTS – CONFIGURATION - WINDOWS 10

- Show message box:** If the On error, On warning and/or On message checkboxes in the settings dialog are checked, a popup message will appear on screen whenever an alert occurs. This will pop up in the middle of the screen in front of all other windows but is non-modal, meaning it still allows the user to interact with NavView before clicking the OK button, see Figure 19-31

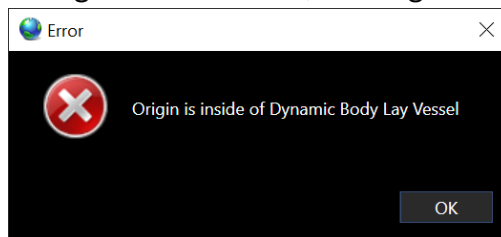



FIGURE 19-31 ALERT POPUP WINDOW

## 19.2.4 ACKNOWLEDGING ALERTS

When an alert is currently active, meaning it has not yet been cleared, it will continue to flash and create sound if those options are enabled. The user can acknowledge the alert, which will silence the flashing and sound, but the alert will remain in the 'triggered' graphics state on screen and remain in the alert list window until it is cleared.

Alerts can be acknowledged by clicking on the checkmark  button in the alert list table, or by right clicking on the alert, and selecting acknowledge from the context menu, see Figure 19-32

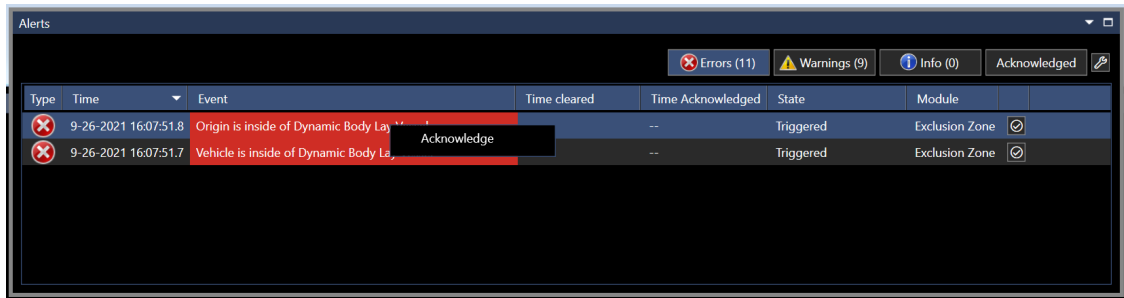


FIGURE 19-32 ALERT ACKNOWLEDGE - CONTEXT MENU