

Anchoring with N2KView

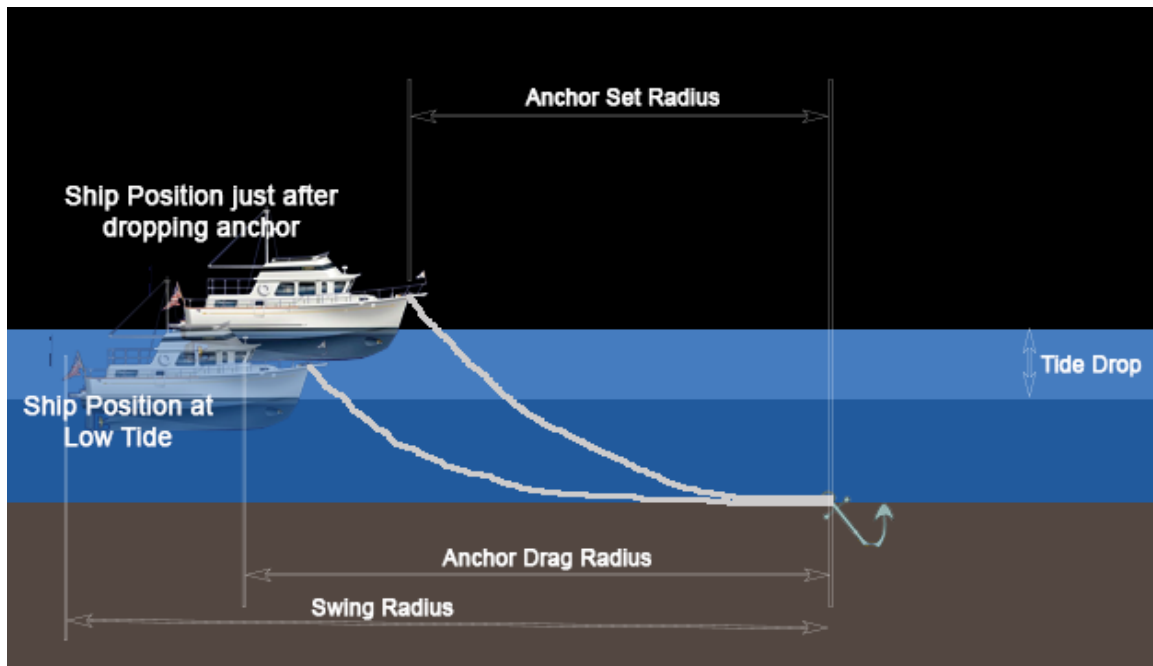
This document is an introduction to the new Anchoring features of N2KView.

N2KView now provides several parameters that aid in monitoring:

- The Anchoring process, including dropping and setting the anchor
- Anchor Drag after the anchor is set
- Retrieving the anchor

Glossary of Terms

Before we get started, let's define the terms used in this document.



1. **Anchor Drag Radius** – The maximum distance possible between the boat's position (at the GPS) and the position of the anchor. If the Rode is not changed the boat can go further from the anchor at low tide, so this is calculated at low tide. If the actual distance from the position where the anchor was dropped to the GPS is ever greater than the Drag Radius, then the anchor is not holding, and you are dragging your anchor. The Drag Radius is the distance entered in the Anchor Watch Alert.
2. **Anchor Set Radius**. This is the maximum distance between the anchor position and the hawsepipe, considering the rode deployed, the height of the hawsepipe, and the depth of the anchor. It is only applicable at the time of anchoring and does not account for tide

changes. It is used when checking if the anchor has set. N2KView will stop displaying the Set Radius an hour after the anchor is dropped.

3. **Minimum Required Anchor Scope.** Depending on the Anchor type and bottom, this is the minimum ratio of Rode deployed to depth of water that is required for the anchor to hold. The value is entered by the user before approaching the area and the software used it to determine the Suggested Rode.
4. **Scope.** This is the ratio of Rode deployed to the depth of the water. The choice of scope depends on the anchor type and condition of the seabed.
5. **Swing Radius.** This is the radius of the circle, centered on the anchor position, in which any part of the boat can go. If any obstruction is inside the swing circle, either the rode needs to be reduced or the anchor position moved.
6. **Tide Drop.** This is the maximum amount that the tide is expected to drop from the time the anchor is dropped during the period that the vessel will be at anchor. This may be over more than one tide cycle.
7. **Tide Rise.** This is the maximum amount that the tide is expected to rise from the time the anchor is dropped during the period that the vessel will be at anchor. This may be over more than one tide cycle.
8. **Hawsepipe.** This term is loosely used to identify where the anchor chain is attached to the vessel, or the position the boat from where the anchor is dropped. For most vessels it will be at the bow. When dropping the anchor, the distance from the GPS to the point where the anchor is dropped is critical to determine the anchor drop position, and the distance from the bow to the anchor drop position will determine the correct positioning of the symbol on the Anchor component. The height of the hawsepipe allows N2KView to calculate the vertical component of the rode from the hawsepipe to the sea bed.

How is N2KView going to help you anchor

- a. N2KView will allow you to enter and adjust the tide rise and fall and required Minimum Required Anchor Scope. These values will be used in subsequent calculations.
- b. While approaching your anchoring position it will monitor the depth of water and calculate and display the amount of Rode (*Suggested Anchor Rode*) required to achieve your required Minimum Anchor Scope at high tide. It will also calculate and display the Drag Radius and Swing Radius for that rode and depth.
- c. While approaching your anchor position, it will monitor the depth of water and indicate if the tide drop will result in your boat grounding.
- d. When the anchor is dropped, N2KView will record the anchor position, time of drop and the depth when the anchor is dropped.
- e. N2KView will allow you to enter and adjust the rode deployed so that all calculations made after the anchor is dropped use the correct rode.
- f. While checking that your anchor is set and holding, N2KView will display a circle centered on the anchor position with a radius equal to the maximum distance between the hawsepipe and the anchor. This is the Set Radius. N2KView will also display the distance that you are over the Set Radius (it should always be negative).
- g. N2KView will continuously calculate and display the distance from the anchor to your GPS, and the distance from the anchor to the hawsepipe.
- h. If your anchor drags while you are setting, N2KView will calculate the new anchor position when the anchor does set.
- i. While at anchor N2KView will monitor the boat's position and generate an alert if the boat goes outside the Drag Radius.
- j. While pulling up the anchor, N2KView will provide continuous range and bearing information which can be used to steer the boat until the hawsepipe is directly above the anchor position.

Configuring N2KView Anchoring.

For N2KView to correctly understand your anchoring setup, there are a few physical dimensions that we need to set up. Go to the **Configuration Menu** and press on **Anchoring** to display the **Anchoring Configuration Dialog**.

Anchoring

☒ Master Anchoring Console ☐ Slave Anchoring Console

Dimensions

Ship's Length: 110 feet

Hawsepipe Offset from GPS: 40 feet

Hawsepipe Offset from Bow: 10 feet

Hawsepipe Height: 7 feet

Minimum Anchoring Depth: 6.6 feet

Maximum Rode: 328 feet

Anchoring Parameters

Tide Drop: 8 feet

Tide Rise: 3 feet

Min. Req. Anchor Scope: 2.5:1

Longitude: 34°23.214'N

Longitude: 132°52.198'W

Anchor Depth: 47.8 feet

Save Cancel

For now, we will only enter the dimensions of your vessel.

Ship's length – this is the overall length from the front of the pulpit to the back of the swim platform.

Hawsepipe Offset from GPS – this is the distance from the GPS longitudinally to the point where the anchor is dropped at the hawsepipe.

Hawsepipe Offset from Bow – this is the distance from the front of the pulpit longitudinally to the point where the anchor is dropped.

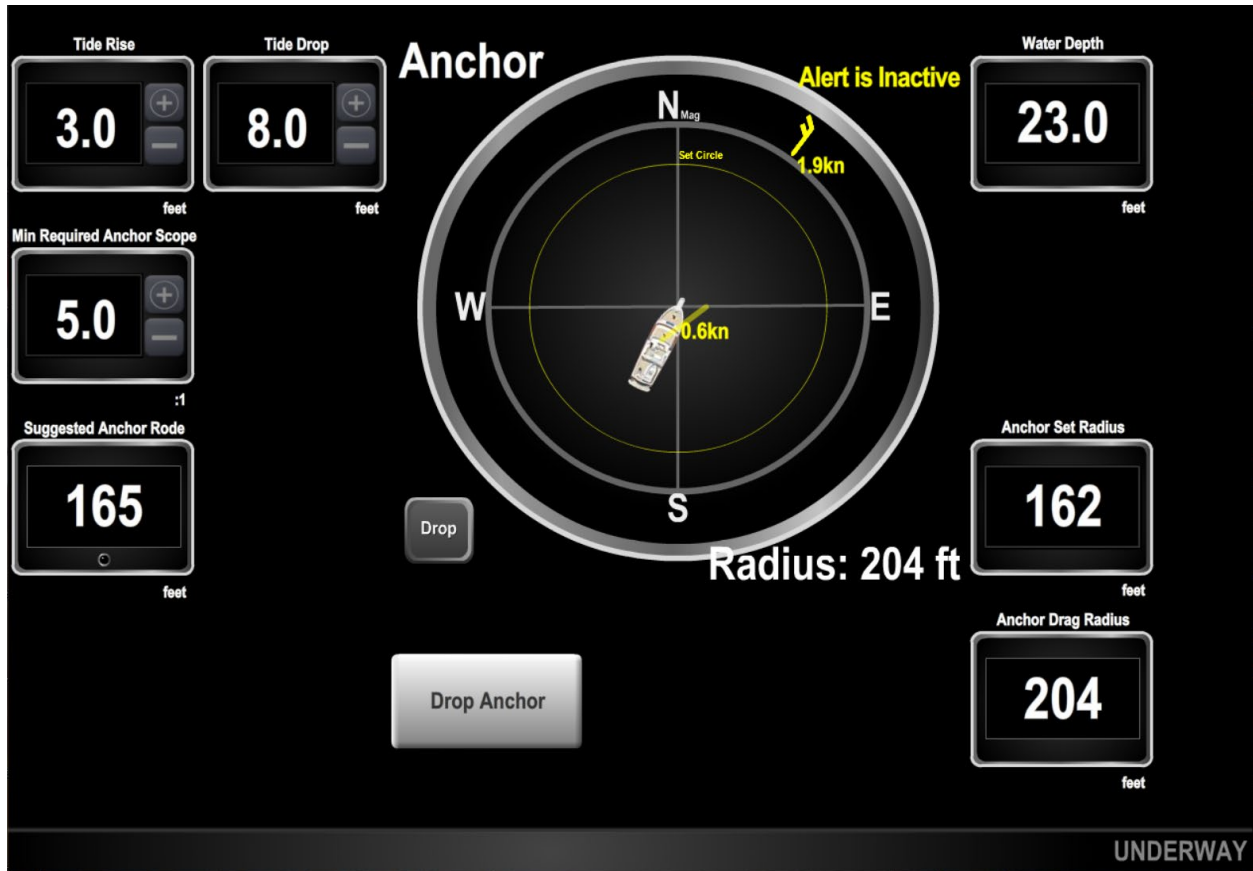
Hawsepipe Height – The height of the Hawsepipe above the waterline. If you are using a bow eye, then enter the height of the bow eye.

Minimum Anchoring depth – The minimum depth of water you are comfortable anchoring in. Typically this will be your draught plus some safety margin.



Getting Ready to Anchor

The following screenshot shows the components that are used when approaching the anchor position.



Use the **Tide Rise**, **Tide Drop**, and **Minimum Required Anchor Scope** components to enter and modify the parameters that relate to this anchorage.

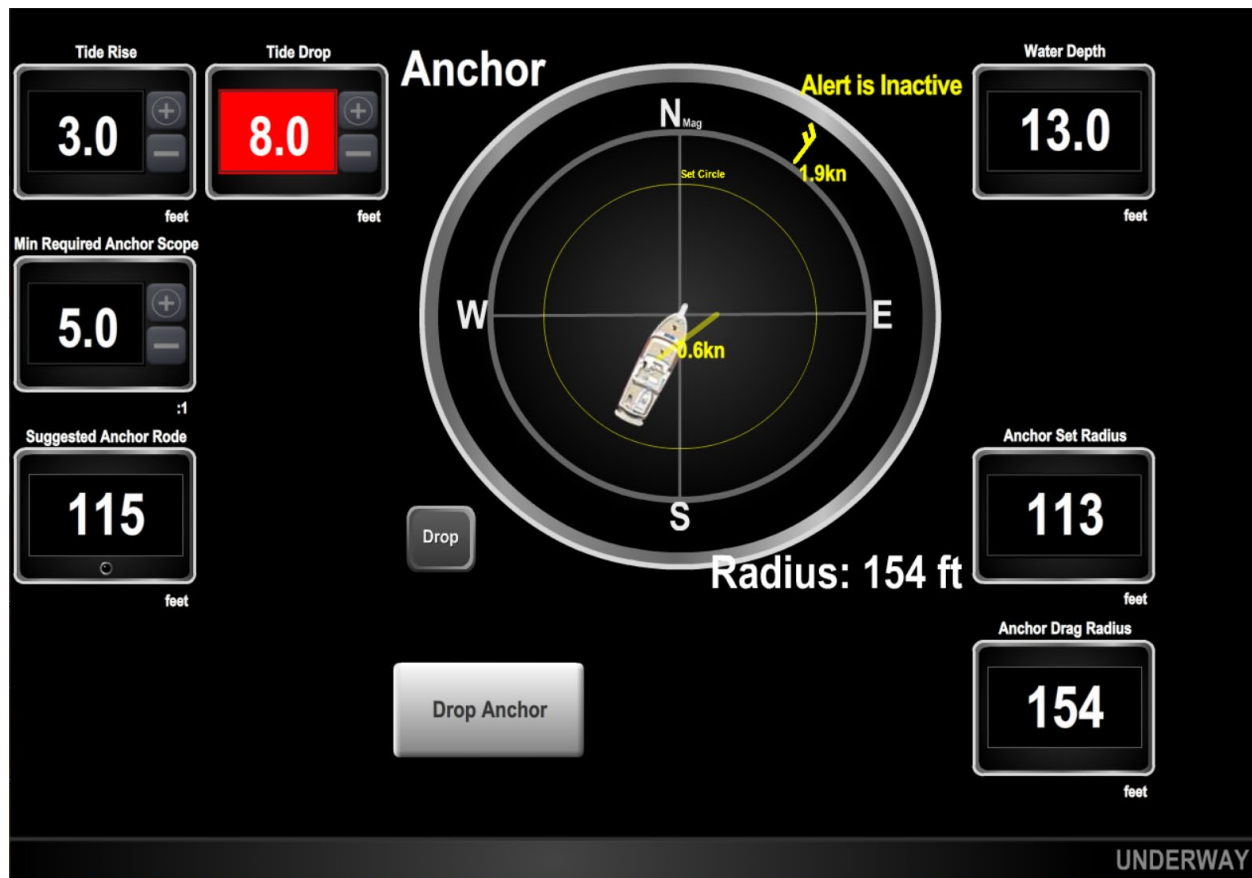
Based on these parameters and the **Water Depth** as measured by the depth sounder, N2KView will continuously calculate and suggest an **Anchor Rod**. For the suggested Anchor Rod, N2KView will also calculate and display the resultant **Anchor Set Radius** and **Anchor Drag Radius**. The Set Radius is the maximum distance from the anchor to the hawsepipe at the time and tide of dropping the anchor.

The center component is the graphical **Anchor** component. It is a complex component which always has as its center the position at which the anchor was dropped. The boat is drawn to scale relative to the radius and is oriented according to its heading. On top of the boat a small vector shows the course and speed from the GPS, and another vector outside the circle show the Wind Speed and Direction. The yellow circle shows the **Anchor Set Radius** for the suggested Anchor Rod, and the solid white circle shows the **Anchor Drag Radius**.

N2KView also monitors the water depth reported by the depth sounder, checking if the tide drop will leave you grounded. In the next screenshot, the water depth has dropped to 13'. With an expected Tide

Drop of 8' and a safe anchoring depth of only 6', the boat will be grounded at low tide – so the background of the Tide Drop component has been colored red.

Note: This is just an aid to help you. If the bottom is all not at the same depth within the Swing Circle, you still have the responsibility to ensure that there is enough water at low tide not to ground the boat **anywhere** within the swing circle.



Dropping the Anchor

When you are over the position at which you want to drop your anchor, press the **Drop Anchor** button. N2KView will record the position at which the anchor is dropped, the time and date, and the depth of water at that point, which will become the anchor depth.

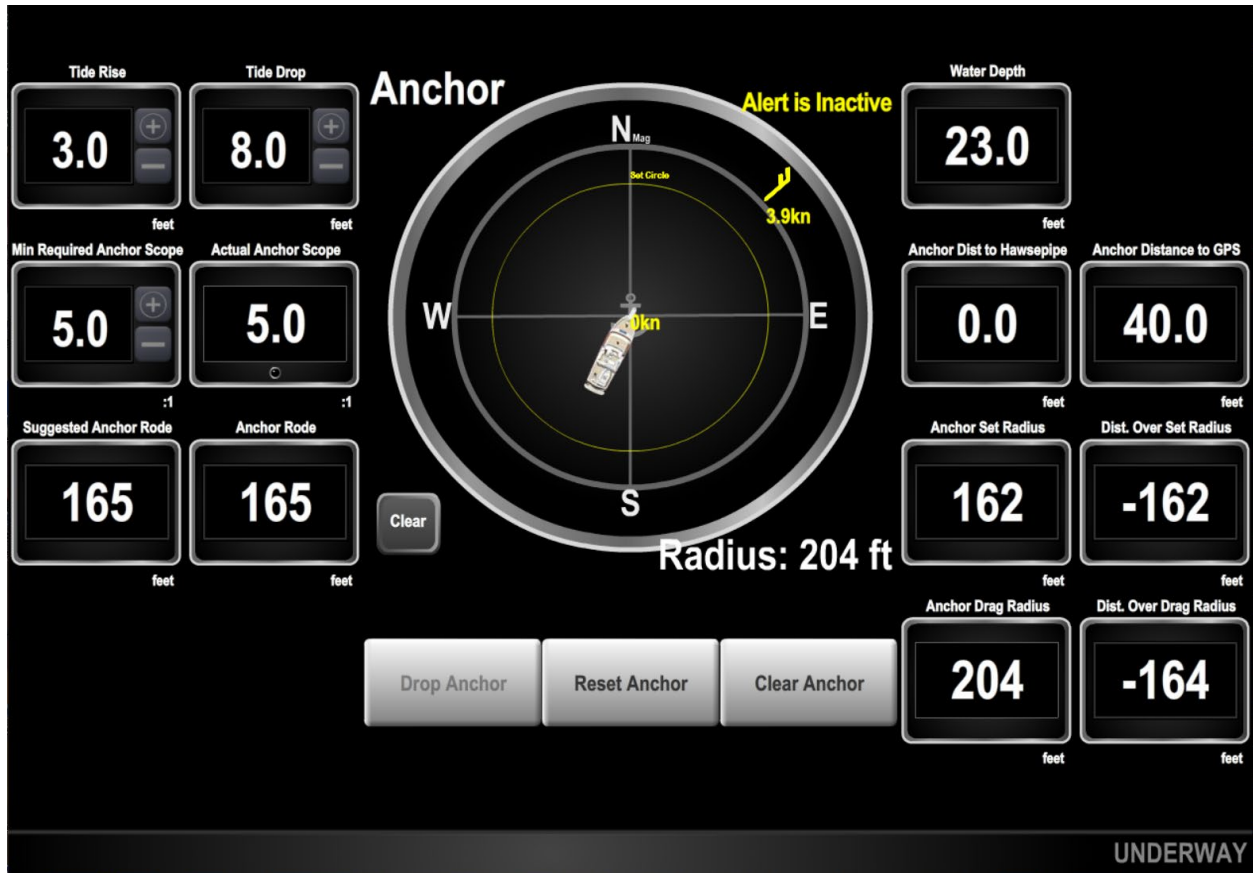
We now introduce some more components.

Alongside the Suggested Anchor Rode is the **Anchor Rode** component. Although it is set to the Suggested Anchor Rode when the Drop Anchor button is pressed, the user is required to correct this value manually after the rode has been deployed. The Drag Radius and Swing Radius must use the actual rode deployed and this is where that figure is input to the system.

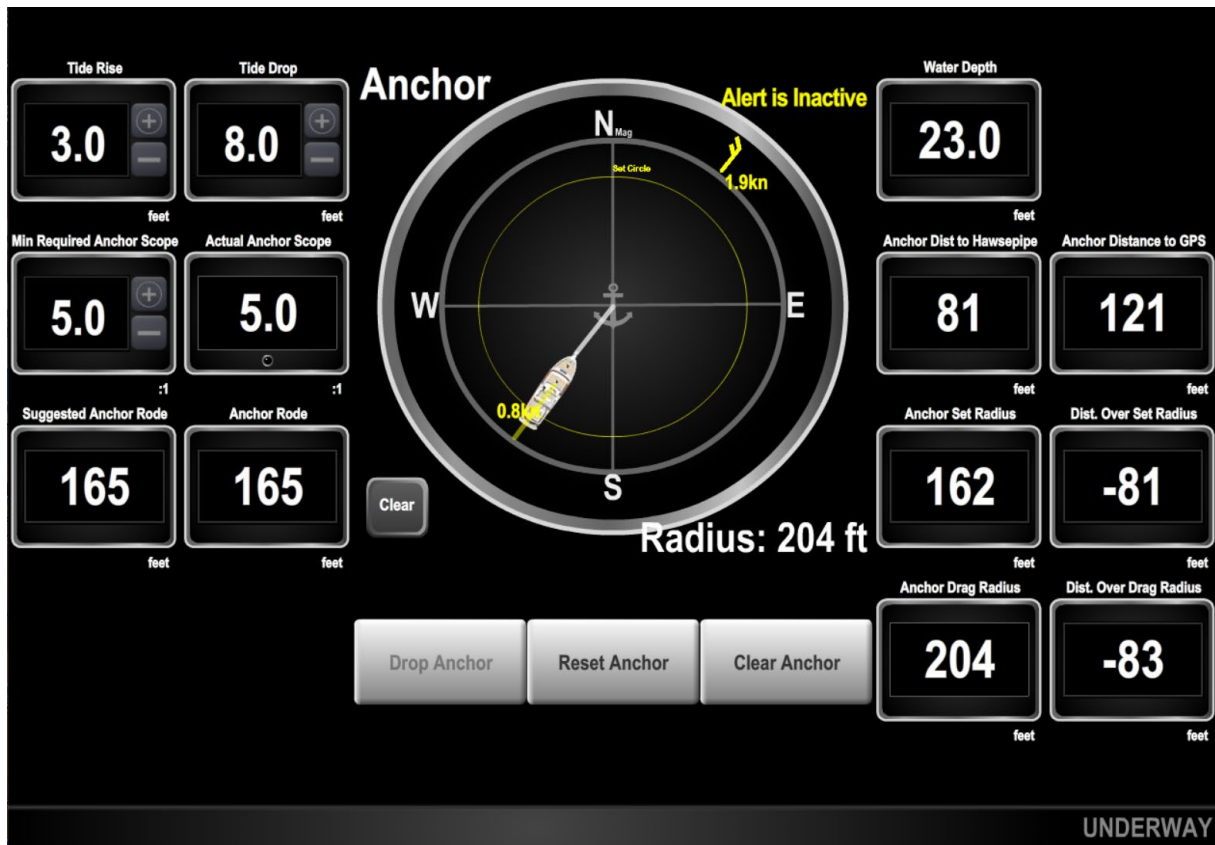
From the actual Anchor Rode, N2KView will calculate the **Actual Anchor Scope** at high tide. This is the worst that the Scope will be as the boat moves up and down with the tide. N2KView also starts

displaying the Distance that the boat is beyond the Set Radius and the Distance beyond the Drag radius. While you are inside the circle, these values will be negative – if they go positive you will get an idea of just how much you are dragging your anchor.

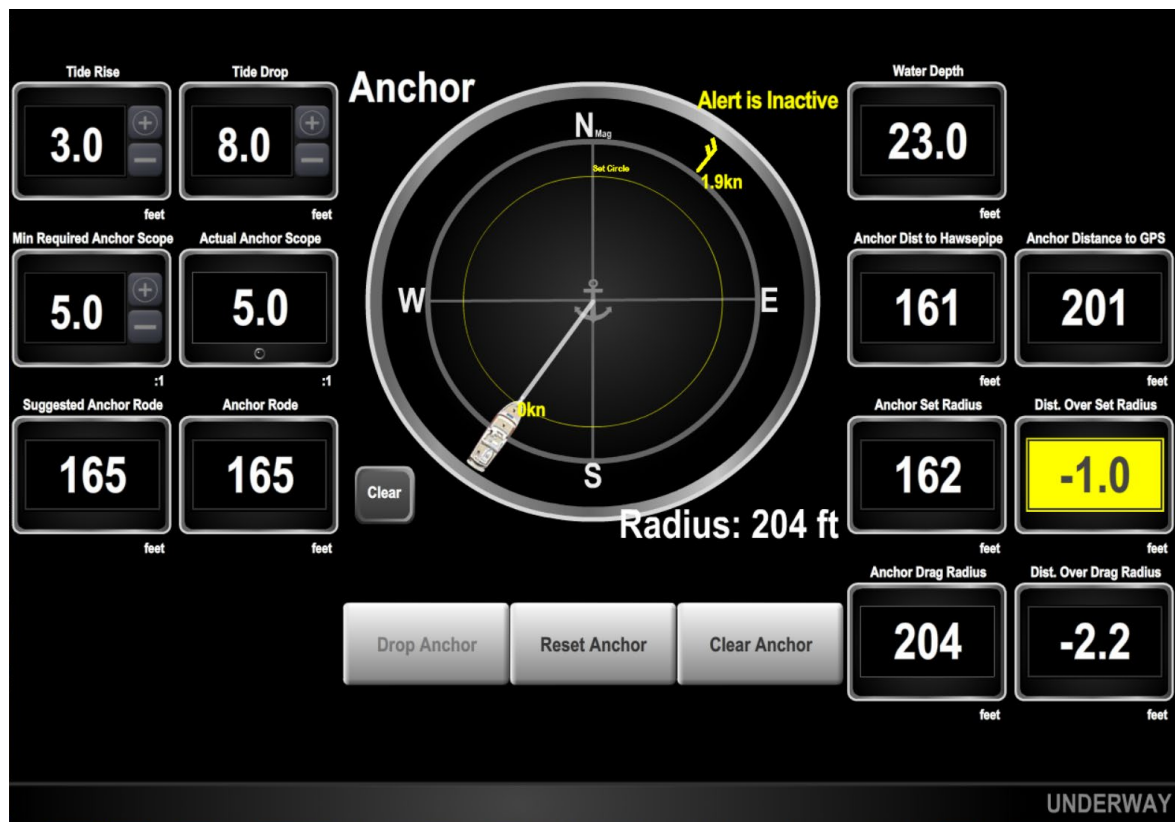
And we show the distance from the anchor to the GPS and to the hawsepipe.



Having pressed the Drop Anchor button, start deploying the anchor and when it hits the seabed, start backing down.

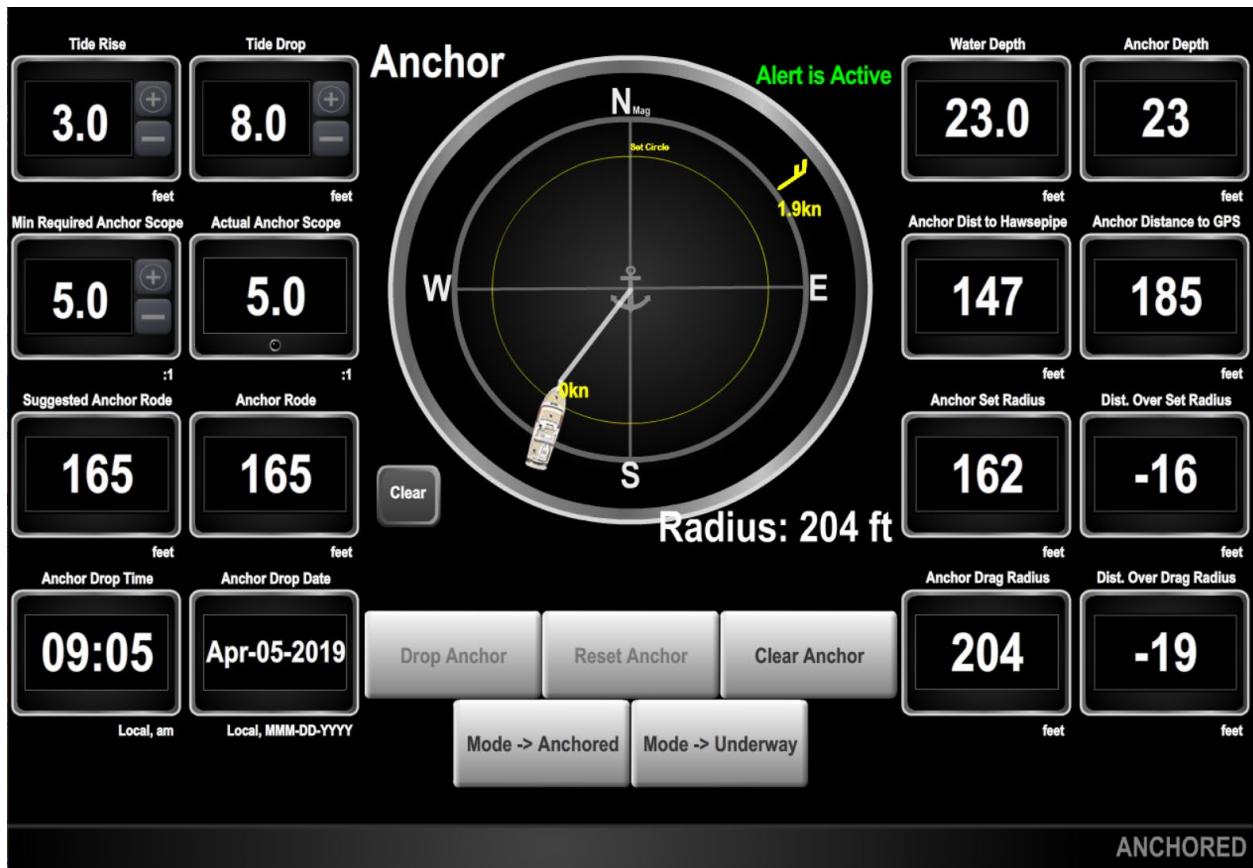


You can see the vector behind the boat showing that we are backing down. You can also see that we have 81 feet to go before reaching the **Set Radius**. This is an important number. Without N2KView's anchoring calculations you do not know when to expect the boat to reach the end of its rode so that you check if it has set correctly. There will be several times that the rode will snag, and it will feel like you are at the end of the rode, but the boat will break free. With N2KView a perfect set will happen when the hawsepole on the diagram is almost at the yellow line.



You can set the colors on the **Dist. Over Set Radius** component to warn you when you are close to the radius.

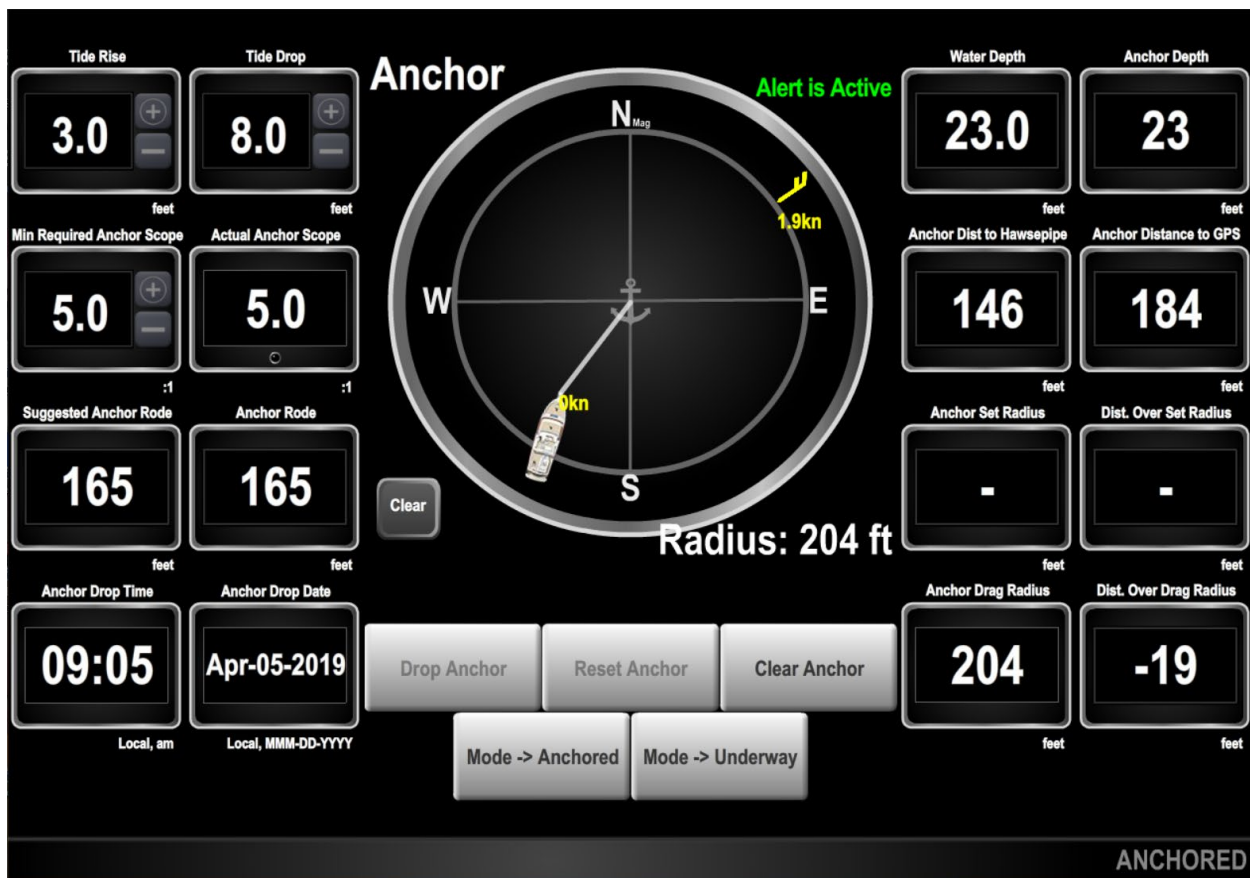
If the boat holds on the anchor, you are almost done. Switch off the engines and change the **Vessel Operating Mode** over to Anchored and the Anchor Watch Alert becomes Active with the correct position and radius.



While drifting at anchor, the Anchor component will show you your boat's position relative to the anchor, the wind, and the movement of the boat. You can also see the Anchor Depth at the time that the anchor was dropped, and the Time and Date. You can add buttons to the screen to later change the mode back to underway.

There are also components to display the **Anchor Lat/Long**, and the **Vessel Swing Circle Radius**, not shown on the screen.

The Anchor Set Radius is only valid for a short time after the anchor is dropped, due to the changing tides. For this reason, N2KView will stop showing the Set Radius after one hour.

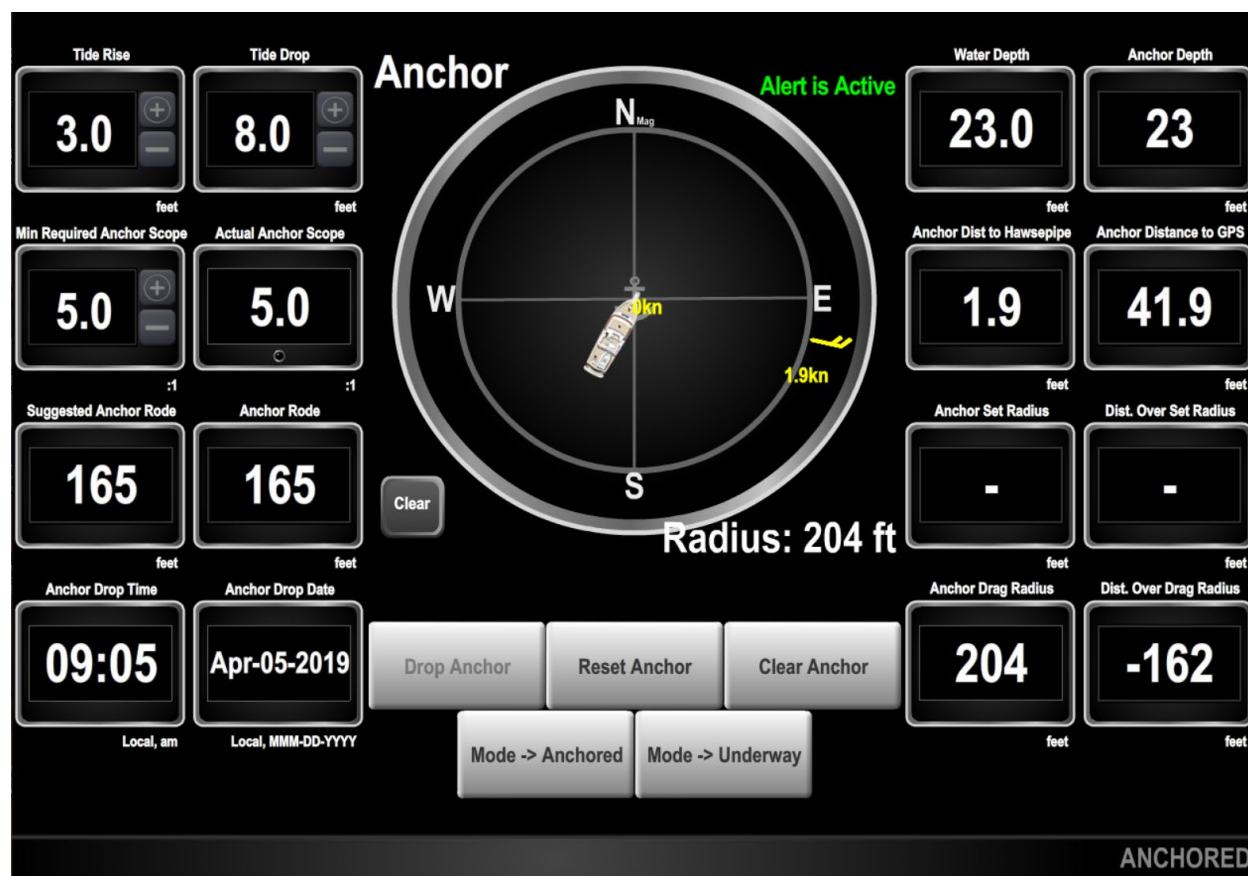


Retrieving the anchor

To retrieve the anchor, use the Anchor control to head to the anchor position. This is much easier than having someone on the bow looking at the rode and signaling left and right so that you can follow the chain. No more guessing where you dropped your anchor.

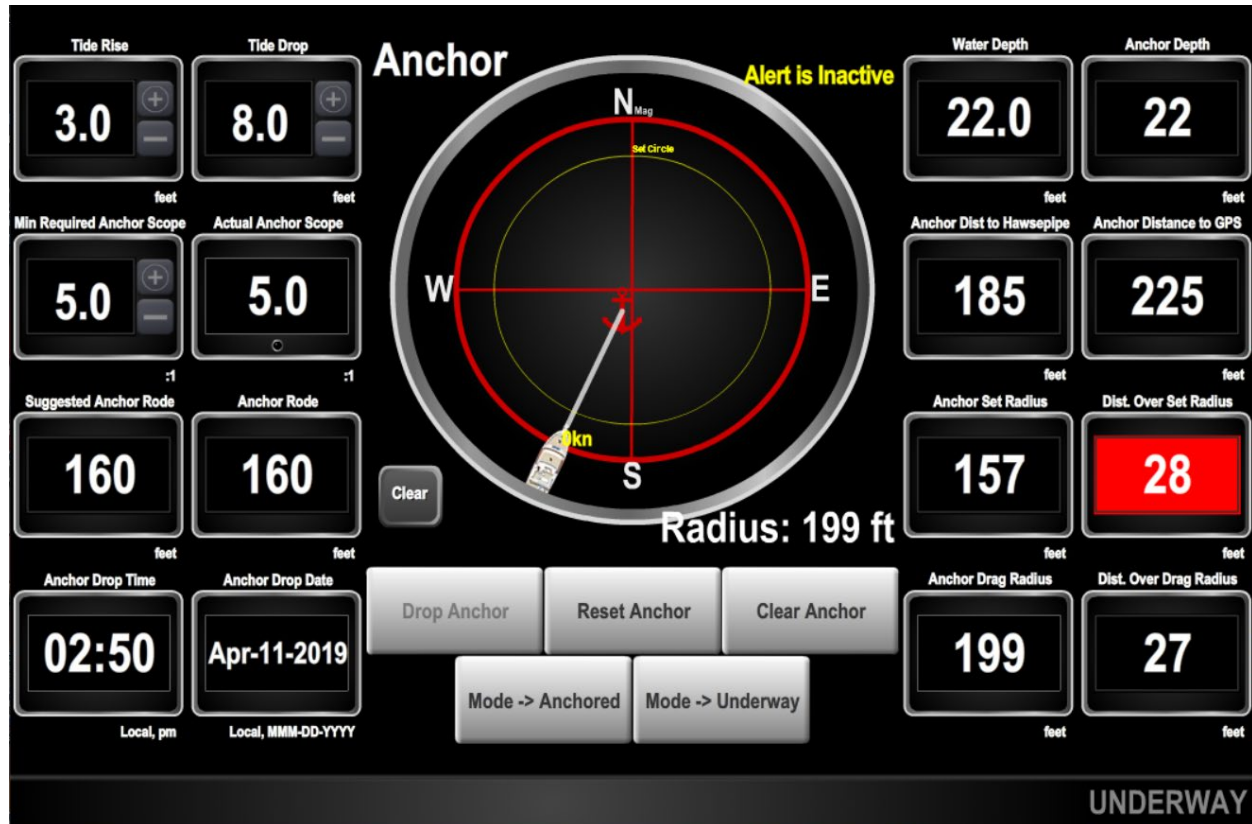
The **Anchor Distance to Hawsepipe** component will tell you how far you are away from the anchor, so you can bring the bow right up to the center of the Anchor component and then you will be raising the anchor vertically to break its hold on the sea bed.

When the anchor is raised, press the **Clear Anchor** button and change the **Vessel Operating Mode** to **Underway**.



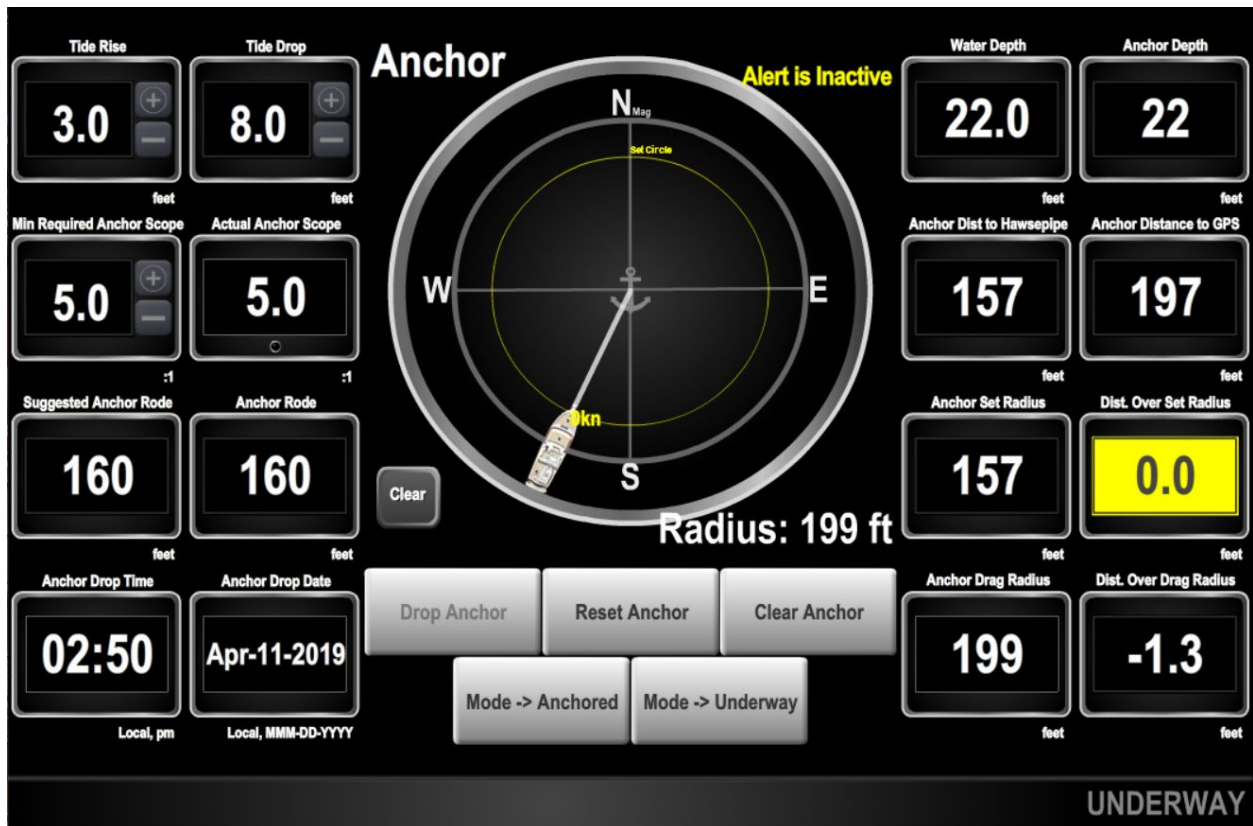
Dragging you anchor while Setting

If you drag your anchor while setting, the symbol on the Anchoring component will be outside the Drag Radius and the Drag circle will turn red, and the anchor will move away from the center of the component.



If the anchor sets while you are pulling back, the boat will stop. The anchor is no longer at the original drop point, so we need to reset the anchor to its new position.

Make sure that the rode is directly ahead of the vessel and press the **Reset Anchor** button while you are pulling back and there is tension on the anchor. N2KView will re-calculate the position of the anchor and update the database.



The **Anchor Depth**, **Anchor Drop Time** and **Anchor Drop Date** have not changed, but the position of the anchor has changed so that the Set Radius now matches the Rode and the **Distance Over Set Radius** is 0.0.

Press the **Mode → Anchored** button to change the **Vessel Operating Mode** to **Anchored**.