

RadarDisplay

The live picture around you, drawn as a classic radar scope, for iPhone, iPad, and Mac.



Overview

RadarDisplay draws live public data on a round, sweeping radar scope: aircraft overhead, ships offshore, weather radar, airport weather, forecasts, storm reports, earthquakes, river gauges, air quality, and road traffic. It is a scope rather than a weather app with a map. Every feed is drawn in the same style, with range rings in miles, so once you can read one feed you can read them all.

You choose where the scope is centered. RadarDisplay comes with six places, and you can change any of them to another US ZIP code. On iPhone and iPad, the scope can also follow your own position while you drive.

RadarDisplay is an informational display, not a navigation or safety tool. Public data can be delayed, incomplete, or missing.

Platforms and requirements

- iPhone and iPad with iOS 15 or later.
- Mac with Apple silicon. See the App Store listing for the minimum macOS version.
- An internet connection. Every feed comes from a public data service over the network.
- No account and no sign-in.

Most feeds cover the United States. Some feeds, such as road incidents, come from individual states, so what you see depends on where the scope is pointed.

Use cases

- **Watch the traffic over your town.** See every aircraft broadcasting its position within range, with its callsign, type, heading, altitude trend, and recent track.
- **Identify a flight you can see or hear.** Tap the aircraft to read its airline, type, altitude, speed, registration, and, for an airline flight, where it's headed.
- **Ride along with a flight.** Open the cockpit view to see a simulated out-the-window view and five flight instruments for the aircraft you choose.
- **Track weather on its way.** Show the national precipitation mosaic, the nearest radar site, or cloud cover, and play the last hour as a loop to see which way it is moving.
- **Check flying conditions.** Read airport weather plots, pilot reports, and hazard areas around you.
- **Read the big picture.** Turn on isobars, fronts, surface wind, and winds aloft on the Synoptic tab, and step the forecast up to 24 hours ahead.
- **Follow a storm.** Track named tropical systems, their forecast cone, and storm reports from people on the ground.

- **Keep an eye on the drive.** On iPhone or iPad, let the scope follow your position and show road incidents and traffic flow ahead.

Getting started

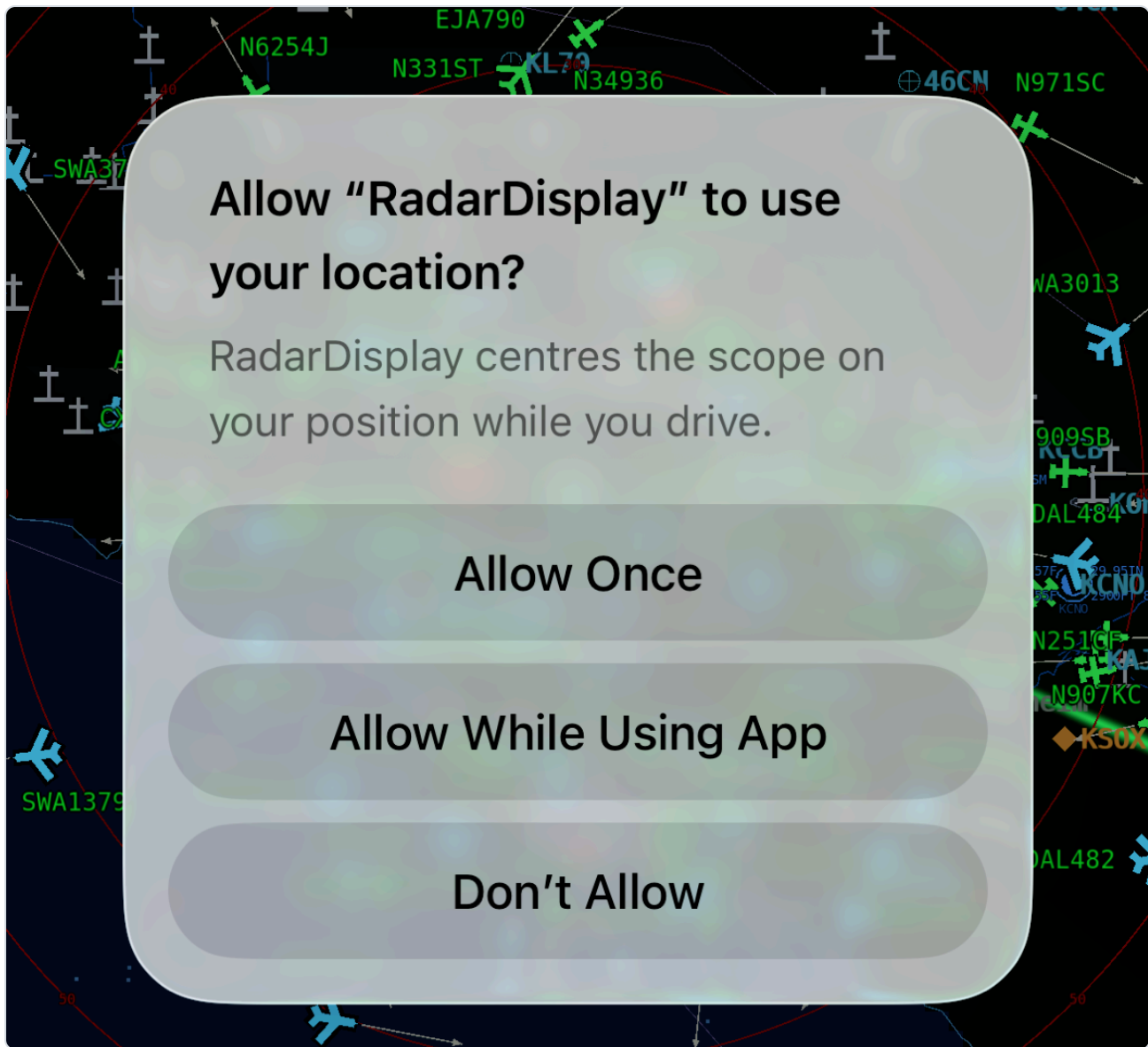
1. Install RadarDisplay from the App Store on your iPhone, iPad, or Mac.
2. Open the app. It shows a short launch screen, then the scope centered on the selected place, with a 40-mile startup range.
3. Tap the place name at the top to confirm where the scope is centered. To change it, see [Locations](#).

On iPhone and iPad, the controls are hidden behind the menu button in the top-left corner. Tap it to show them. On a Mac, the controls run in a row along the bottom of the window.

Permissions

RadarDisplay asks for one permission, and only when you need it:

- **Location (While Using the App):** requested the first time you turn on Drive mode on iPhone or iPad. RadarDisplay uses your position to keep the scope centered on you while you drive. It doesn't ask for your location at any other time.



The location prompt appears only when you turn on Drive mode.

Your settings, layers, and places are saved automatically as you change them. There is no save button.

Features

The scope

The scope is a map of the ground around the center point, with range rings labeled in miles, a sweeping beam, and the data you've switched on drawn over it.

- **Zoom:** pinch on iPhone and iPad. On a Mac, pinch on the trackpad, scroll, or press **Command-=** and **Command-minus**. The range rings always tell you how far out you're

- **Return home:** when you've panned away, a small amber diamond marks home, and the recenter badge's crosshair turns amber. Tap the recenter badge to go back. Tap it again when you're already home to return to your startup range.
- **Details:** tap anything on the scope, such as an aircraft, a weather station, a storm report, or an airport, to see its details. Tap again to put them away.
- **The sweep:** the beam covers 250 miles of ground at any zoom. Turn it off with the sweep badge, and the picture holds still and complete instead of being painted in by the beam.

- The place name at the top shows where the scope is centered. While you're panned away, it also shows how far and in which direction.



The controls

Each control is a badge. On iPhone and iPad they sit in two columns behind the menu button; turn the device sideways and they wrap so every control stays on screen.

Badge	Control	What it does
	Menu	Shows or hides the controls (iPhone and iPad).
	Help	Describes the current feed in plain English, with a User manual button.
	Legend	Opens the key for the symbols and colors on screen.
	Settings	Opens Display settings .
	Locations	Chooses where the scope is centered.
	Range rings	Turns the range rings on or off.
	Air traffic	Turns aircraft on or off.
	Recenter	Returns the scope home, then to the startup range.
	Sweep	Turns the sweeping beam on or off. A slash across the badge means off.
	Weather	Opens the Weather window: Backdrop, Symbols, and Layers.
	Search	Finds an aircraft or ship by callsign or name and follows it.
	Forecast	Opens the forecast for the selected place.
	Ships	Turns ships on or off.
	Drive mode	Centers the scope on your position (iPhone and iPad).
	Split screen	Shows the cockpit view beside the scope (iPhone).

Aircraft

Aircraft come from ADS-B position reports that aircraft broadcast and volunteer receivers collect. Each aircraft is drawn as a symbol shaped and colored by its type, with its nose pointing the way it's heading.

Symbol	Type	What it represents
	Light	A small fixed-wing aircraft, such as a private single-engine plane. Green. This is also the shape for any aircraft whose category isn't listed below.

Symbol	Type	What it represents
	High performance	A fast, highly maneuverable aircraft, such as a military jet or an aerobatic plane. The light-aircraft shape in amber.
	Large or Heavy	An airliner or other large aircraft that isn't drawn with swept wings. Light blue, with a thicker body and longer wings than the light-aircraft shape.
	Swept-wing jet	A jet: an aircraft with an airline callsign, or flying above 18,000 ft or faster than 250 knots. The wings sweep back. The color still shows the category, so most are light blue airliners, and large and heavy jets have bolder strokes.
	Rotorcraft	A helicopter. Orange-red, drawn as a rotor disc with a tail boom pointing away from the direction of travel.
	Glider	A sailplane. Pale blue, with long straight wings and no tailplane.
	UAV	A drone or other uncrewed aircraft that broadcasts its position. A solid violet triangle.
	Surface vehicle	A vehicle or fixed obstacle on an airfield that broadcasts like an aircraft, such as an airport service truck. A gray square that doesn't turn.
	Balloon	A balloon or airship. An envelope with a basket below it. It doesn't turn with heading.
	Ultralight	An ultralight or hang glider. A shallow solid wedge.
	Parachute	A parachutist or skydiving aircraft reporting as a parachute. Drawn as a short bar with two posts. It doesn't turn with heading.
	No type reported	An aircraft that reports no category and whose callsign gives no clue. A green diamond that doesn't show heading.
	No motion reported	An aircraft that reports no category, no heading, and no speed. The diamond in cyan. Its callsign is cyan too.
	Military	An aircraft flagged as military in the aircraft database. Its usual shape, drawn in red with white and blue borders. Its callsign is pale blue.

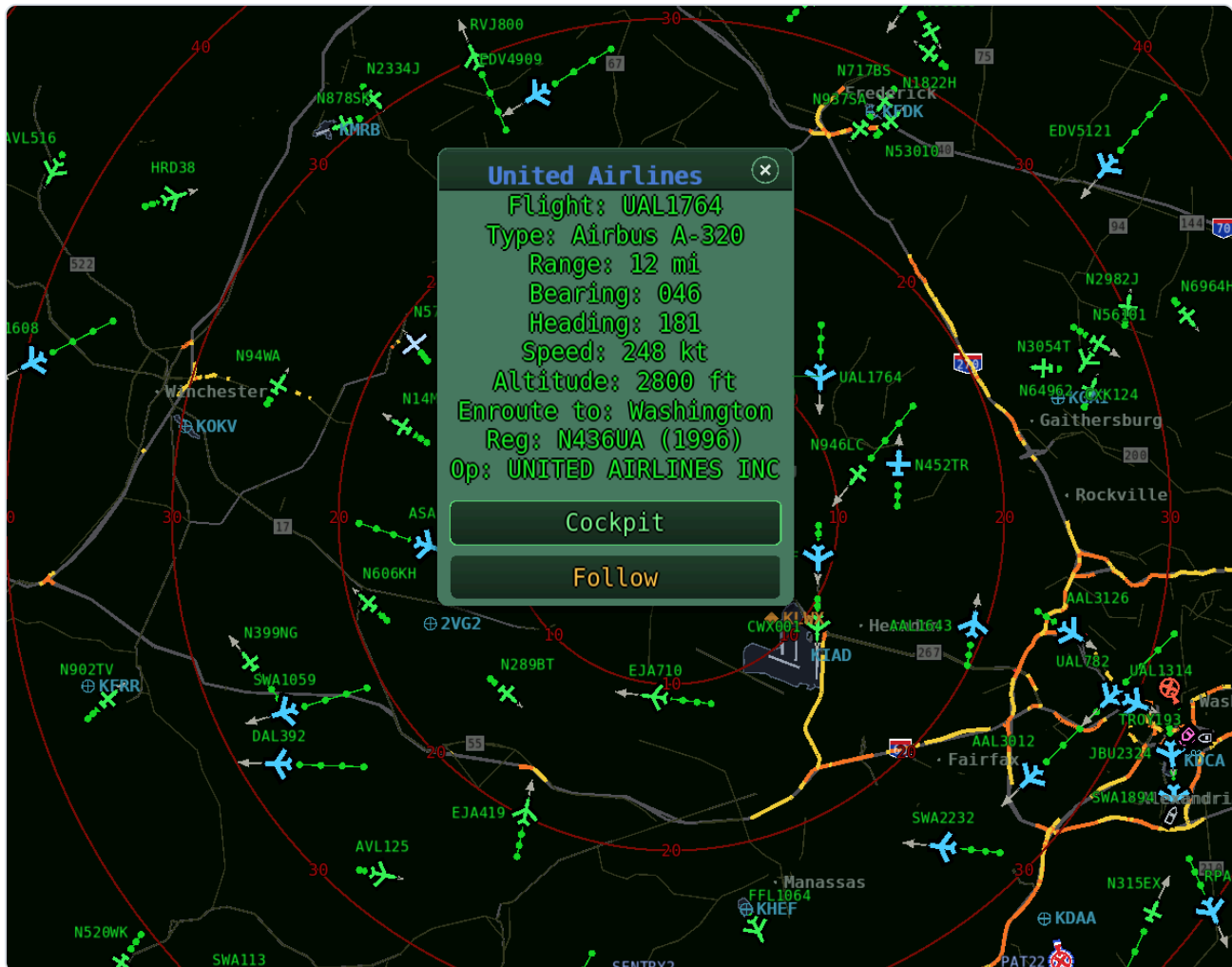
For heading vectors, trails, callsigns, and the followed aircraft, see [Aircraft](#) in the Symbol reference.

- **Callsigns:** airlines show a three-letter code and flight number. A registration such as N123AB usually means a private aircraft.
- **Heading vectors:** a line ahead of each aircraft. The faster it's going, the longer the line.
- **Climb and descent:** while track trails are on, purple triangles pointing up mark where an aircraft climbed, and yellow triangles pointing down where it descended.
- **Track trails:** a trail of where each aircraft has been. Turn trails on in **Weather > Layers > ADSB**.

- **Hide slow traffic:** aircraft slower than the **Minimum speed** setting (30 knots by default) are hidden, which removes most taxiing aircraft.

Tap an aircraft to open its info box. It shows the operator, flight, aircraft type, range and bearing from the center, heading, speed, altitude, and registration. Depending on the aircraft, the box offers up to two buttons:

- **Follow:** keeps the aircraft at the center of the scope. See [Follow an aircraft or ship](#).
- **Cockpit:** opens the cockpit view for an airborne aircraft.



Tap an aircraft to see its details.

Enroute to

For an airline flight with a published route, the info box adds an **Enroute to** line naming the city the flight is headed for. When one flight number makes several stops, the line names the stop the aircraft is flying toward now, worked out from its position and heading. Private aircraft don't have a published route, so they show no **Enroute to** line.

Enroute to comes from the airline's published schedule, not a live flight plan. A diverted flight, or a flight number the airline has moved to another route, can show the wrong city.

Follow an aircraft or ship

When you follow an aircraft or ship, the scope pans to keep it at the center, its symbol turns yellow, and it draws at full brightness. The top of the screen shows the nearest town to the aircraft and a **Cancel follow** plate.

1. Tap an aircraft or ship.
2. Tap **Follow**.
3. To stop, tap **Cancel follow** at the top of the scope, or tap the recenter badge.

If the followed aircraft stops reporting, the follow ends and a **Signal lost** panel lists the five nearest aircraft with their speed, heading, and altitude. Tap **Follow** beside one to follow it instead, or close the panel.

You can also start a follow from Search:

1. Tap the search badge.
2. Type the start of a callsign or ship name on the keypad. For example, `UAL12` finds `UAL1252`.
3. Tap **Search**. If a match is in range, the scope starts following it. If not, the panel shows `No target with that callsign`, and you can try again.

On a Mac, choose **Go > Find Callsign** (Command-F) and type the callsign. **Go > Cancel Follow** (Command-period) ends a follow.

Cockpit view

The cockpit view shows a simulated view out of the front of an airborne aircraft, drawn from terrain and imagery for its reported position, above five instruments: airspeed, attitude, altitude, heading, and vertical speed. The title bar shows the callsign, destination, aircraft type, squawk code, and altimeter setting.

1. Tap an airborne aircraft.
2. Tap **Cockpit**.

While the cockpit is open, tap another aircraft to switch the cockpit to it. If the aircraft leaves the feed, the cockpit shows **Signal lost**. Close the cockpit with its close box.

On iPhone, tap the split-screen badge to give the cockpit half the screen: the bottom half in portrait or the left half in landscape. On a Mac, the cockpit opens in its own window, which you can resize, move, or make full screen. Press Esc or click its close button to close it.



On iPhone, the split screen shows the scope and the cockpit together.

For ships, the same button reads **Bridge** and shows a sea-level view with speed, heel, clock, heading, and turn-rate gauges.

Ships

Ships come from AIS position reports that vessels broadcast. Each ship is drawn as a hull sized by its length and colored by its type, such as tanker, passenger, tug or pilot, or sailing.

Symbol	Type	What it represents
	Cargo	A cargo vessel, such as a container ship or bulk carrier. Amber.
	Tanker	A tanker carrying oil, gas, or chemicals. Red-orange.

Symbol	Type	What it represents
	Passenger	A passenger vessel, such as a ferry or cruise ship. Pink.
	High speed	A high-speed craft, such as a fast ferry. Yellow.
	Tug/pilot	A tug, a vessel towing, or a pilot boat. Mint green.
	Fishing	A fishing vessel. Leaf green.
	Sailing	A sailing vessel or pleasure craft. Pale gray-blue.
	Service	A working vessel, such as a dredger, diving vessel, search and rescue boat, law enforcement boat, or medical transport. Sky blue.
	Military	A military vessel. Olive.
	Unreported	A vessel that reports no type, or a type RadarDisplay doesn't group, such as wing-in-ground craft. Gray.
	Launch	A small boat, about 10 to 29 meters long. A short, wide hull with a deckhouse bar.
	Coastal	A vessel about 30 to 89 meters long, such as a tug or coaster.
	Large	A vessel about 180 to 299 meters long. The hull gets longer and gains deck lines as the ship gets bigger; a 90 to 179 meter ship, shown in the color rows above, has one deck line.
	Ultra	A vessel 300 meters or longer, such as a large container ship or tanker. The longest hull, with three deck lines.
	Size unknown	A vessel that reports no length, or less than 10 meters. A plain hull with no deckhouse.

For course lines, trails, names, and stale positions, see [Ships](#) in the Symbol reference.

- Turn ships on or off with the ships badge.
- Turn ship names, heading vectors, and track trails on or off in **Weather > Layers > Ships**.
- Tap a ship for its details, then **Follow** or **Bridge**.

Ships appear only where there is water and traffic within range. An inland scope may show no ships until you zoom out.

Weather backdrop

The backdrop is what’s painted behind everything else. Tap the weather badge and choose **Backdrop**.

Choice	What it shows
None	No backdrop.
Precipitation	Rain and snow now, from the national radar mosaic.
Precip type	Rain, snow, and mixed precipitation.
Echo tops	How high the storm tops reach.
Hail size	Estimated hail size.
Liquid VIL	How much water a storm column holds.
Rain rate	How hard it’s raining.
Doppler	The nearest radar site’s own picture, at full detail.
Air quality	Air quality as a colored field.

Two switches sit under the list:

- **Cloud cover:** adds satellite cloud cover on top of the backdrop.
- **Traffic flow:** colors the roads by traffic: gray where it’s moving, amber where it’s slow, and red where it’s stopped.

The radar picture stops about 250 miles from the nearest radar. An empty area past that means no radar reached that ground.



Choose what's painted behind the scope on the Backdrop tab.

Symbols

The **Symbols** tab of the Weather window turns on the marks drawn on top of the scope. Each has a switch.

Icon	Switch	What it shows
	Storm reports	What people on the ground saw, such as hail, wind damage, flooding, and funnel clouds. The symbol's shape tells you what was reported.
	NWS alerts	National Weather Service warnings, drawn as their outlines.
	Tropical	Named tropical storms from the National Hurricane Center.

Icon	Switch	What it shows
	Lightning	Lightning flashes seen by satellite in the last five minutes.
	Aviation WX	Weather reports from airports.
	Road incidents	Crashes, closures, and roadwork, colored by how much they affect traffic.
	Fire detections	Probable fires that NASA satellites detected, and the outlines of named wildfires.
	Hail >1 in	Areas where hail larger than an inch has fallen.
	Earthquakes	Recent earthquakes, all drawn with the same cyan symbol. Tap one for its magnitude and depth.
	River gauges	River levels, colored by flood stage.
	Buoys	Offshore weather buoys.

Each switch's symbols are described in full in [Symbol reference](#).



The Symbols tab turns each kind of mark on or off.

Layers

The **Layers** tab of the Weather window holds every other switch, in sub-tabs. A switch works even while its feed is off, so you can set a layer up before you turn it on.

Map

- **Places & POI:** town and city names. Fewer show as you zoom out.
- **Roads:** roads with highway shields. Off by default. Dim them with **Road brightness** if they crowd the weather.
- **Water:** coastlines, lakes, and rivers. Dots on open water show the forecast sea state: the more dots, the bigger the waves, and white dots mean rough water.
- **Airports:** runway outlines, so you can see which way the runways point.

- **Launches:** upcoming rocket launches, marked at the launch pad with a countdown. Tap one for the mission, rocket, and status.

Weather

- **Motion loop:** plays the last hour of the backdrop as a loop, six ten-minute steps over 30 seconds, then pauses on the live picture. Off by default.
- **PIREPS:** what pilots have reported, such as turbulence, icing, and cloud tops.
- **SIGMET areas** and **G-AIRMET areas:** areas under an aviation weather warning or forecast hazard. **Hazard fills** shades them instead of outlining them.
- **Stations:** airport weather plots. Under it, choose **Station circles** (colored by flying conditions), **Wind barbs**, **Temp / dewpoint**, **Altimeter**, **Ceiling / vis**, and **Station IDs**.
- **Tropical systems**, **Storm tracks**, and **Forecast track:** a named storm, the trail of where it has been, and the forecast cone and track for the next five days. Tap a storm and tap **Clear track** to wipe its trail.
- **Storm reports:** the same switch as on the Symbols tab.

ADSB and Ships

- **Callsigns** or **Ship names**, **Heading vectors**, **Track trails**, and **Trail points** (how much of each trail to draw).
- **Hide slow traffic** (aircraft only): hides aircraft slower than the **Minimum speed** setting. Turn it off to watch ground traffic at an airport.

Synoptic

The Synoptic tab shows the weather chart for the whole view, from a forecast model. All of its layers are off by default.

- **Isobars + H/L:** lines of equal pressure every 4 hPa, with highs and lows marked. **Shade pressure** adds a pale wash: blue for low, amber for high.
- **Fronts:** plain colored lines: blue for cold, red for warm, purple for occluded, red and blue for stationary, and orange for a trough. They show the current analysis and don't change with **Forecast hour**.
- **Wind field:** surface wind arrows. **Show gusts** stretches each arrow to the forecast gust.
- **Temperature** and **Dewpoint:** lines every 5 °C.
- **CAPE:** how much energy the air has for storms, from 500 to 4000 J/kg.
- **Freezing level:** the height of the freezing level, every 2,000 ft.
- **Wind 500 MB** and **Wind 250 MB:** the wind at about 18,000 ft and about 34,000 ft (the jet stream).
- **Forecast hour:** 0 is now; step it forward in 3-hour steps up to 24 hours.



The Synoptic tab turns on chart layers and steps the forecast hour.

Legend

Tap the legend badge to open a key for what's on screen: aircraft types, heading vectors, ship types and sizes, and the colors of whichever layers are on. Tap anywhere to close it. On a Mac, choose **View > Legend** (Command-K).



The legend explains the symbols and colors on screen.

For every symbol, line and color scale the scope can draw, see [Symbol reference](#).

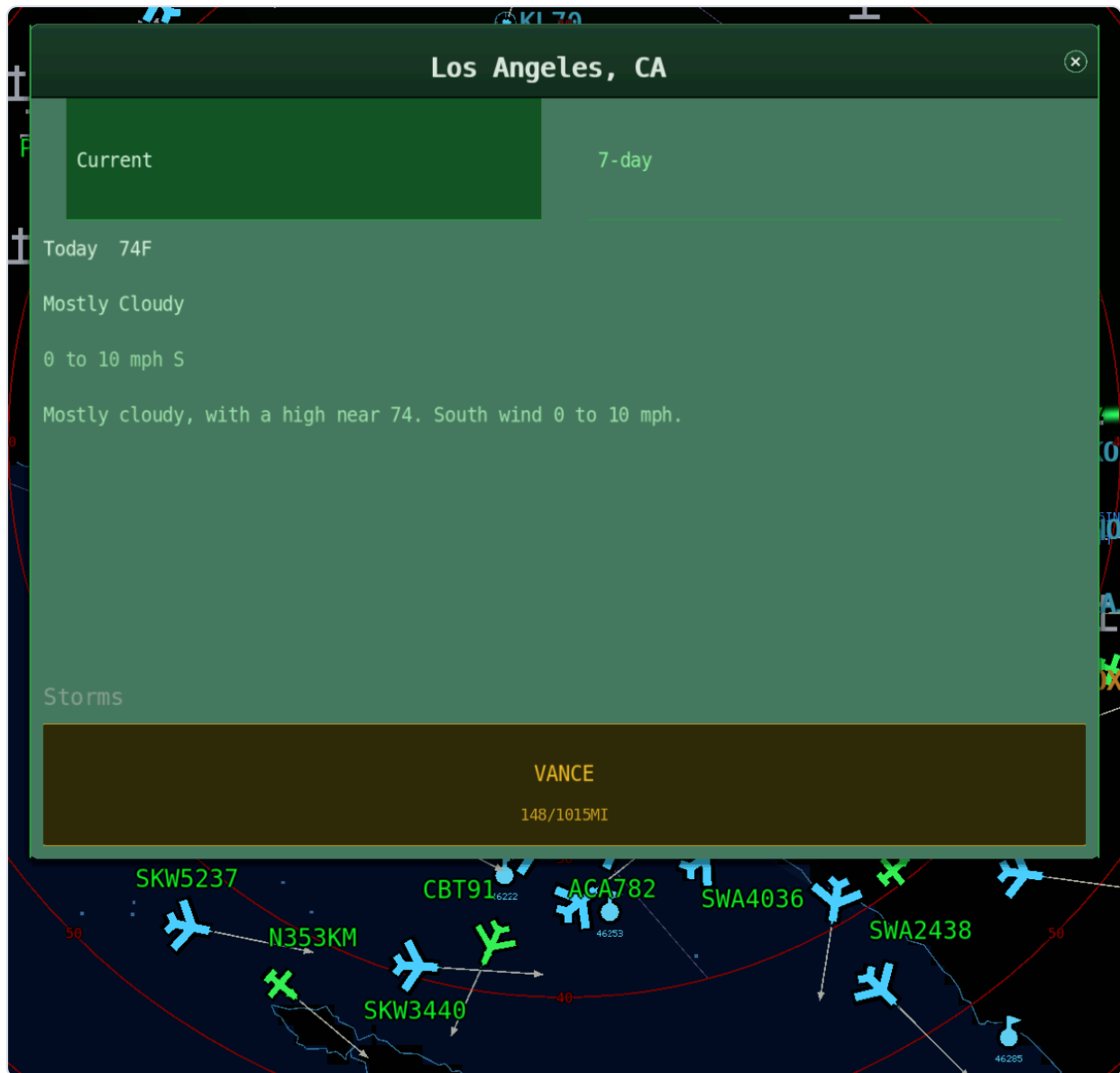
Forecast

Tap the forecast badge to open the National Weather Service forecast for the selected place.

- **Current:** today's conditions, temperature, and wind, plus any active alerts.
- **7-day:** the forecast for the week ahead.

- **Storms:** when a named tropical storm is active, it's listed with its distance and bearing. Tap it to pan the scope to the storm.

Tap outside the panel to close it.



The forecast panel shows the forecast for the selected place.

Locations

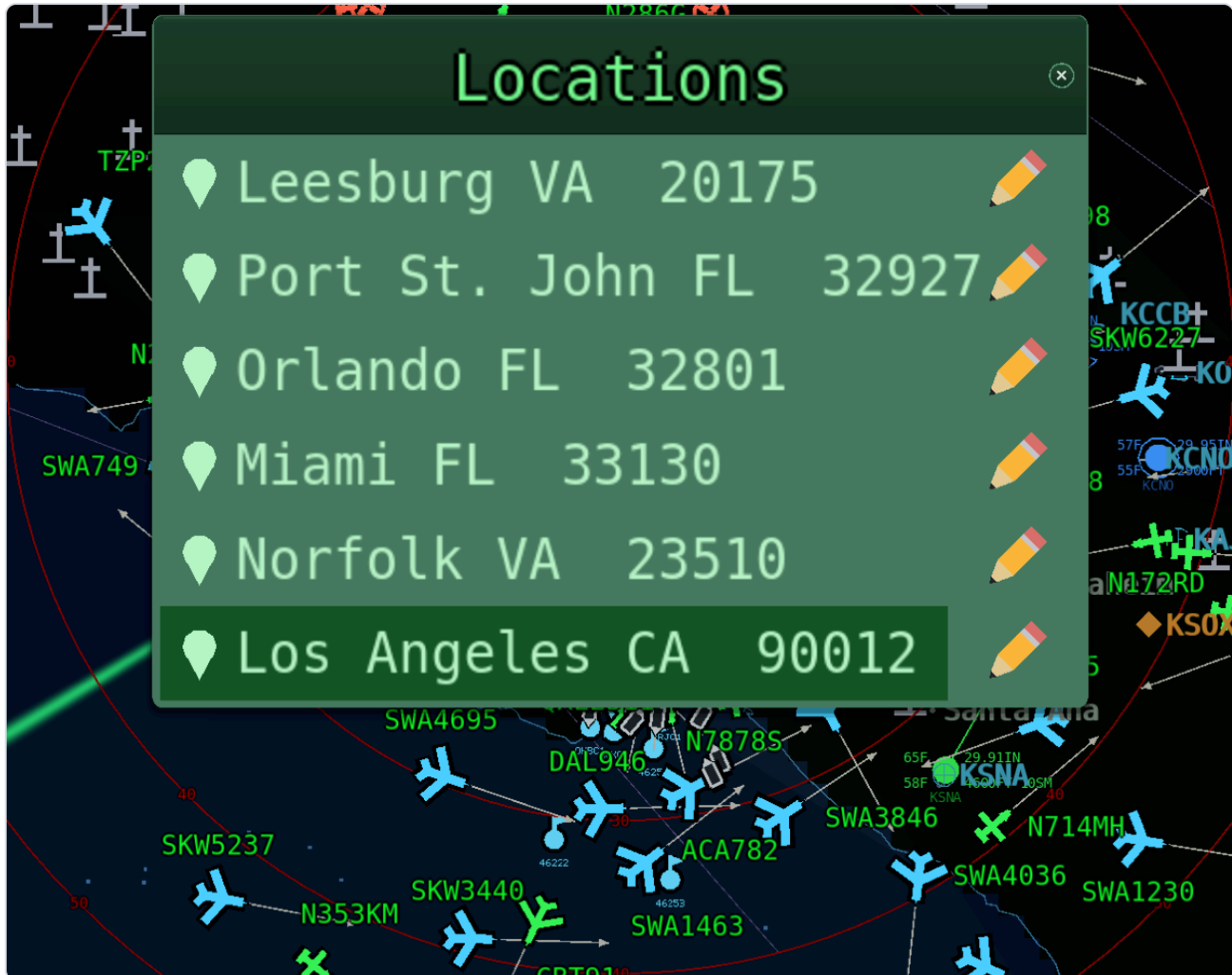
The scope is centered on a place identified by a US ZIP code. RadarDisplay comes with six places, and every feed follows the one you choose.

1. Tap the locations badge. On a Mac, you can also choose **RadarDisplay > Locations**.
2. Tap a place to move the scope there.

To change a place to another ZIP code:

1. Tap the pencil beside the place.
2. Type a five-digit US ZIP code and confirm.

The place takes the name of the ZIP code's town. Feeds that come from a state agency, such as some road incident feeds, change with the place.



Choose a place, or tap the pencil to change its ZIP code.

Drive mode (iPhone and iPad)

Drive mode keeps the scope centered on your device's position as you move. It changes nothing else.

1. Tap the drive badge.
2. If asked, allow RadarDisplay to use your location while using the app.

A cyan crosshair marks where you started, and a cyan trail runs from there to a car symbol at the center of the screen. To stop, tap **Cancel drive** at the top of the scope or tap the recenter badge. The scope returns home and the trail is cleared.

Help and the user manual

On a Mac

On a Mac, the controls run along the bottom of the window.

Menu commands:

Menu	Command	Shortcut
RadarDisplay	About RadarDisplay	
RadarDisplay	Settings	Command-comma
RadarDisplay	Locations	
View	Layers	Command-L
View	Legend	Command-K
View	Zoom In	Command-=
View	Zoom Out	Command-minus
View	Recenter	Command-O
View	Refresh Source	Command-R
Go	Find Callsign	Command-F
Go	Cancel Follow	Command-period
Help	RadarDisplay User Manual	Command-?

Press Esc to close an open panel or the cockpit window.



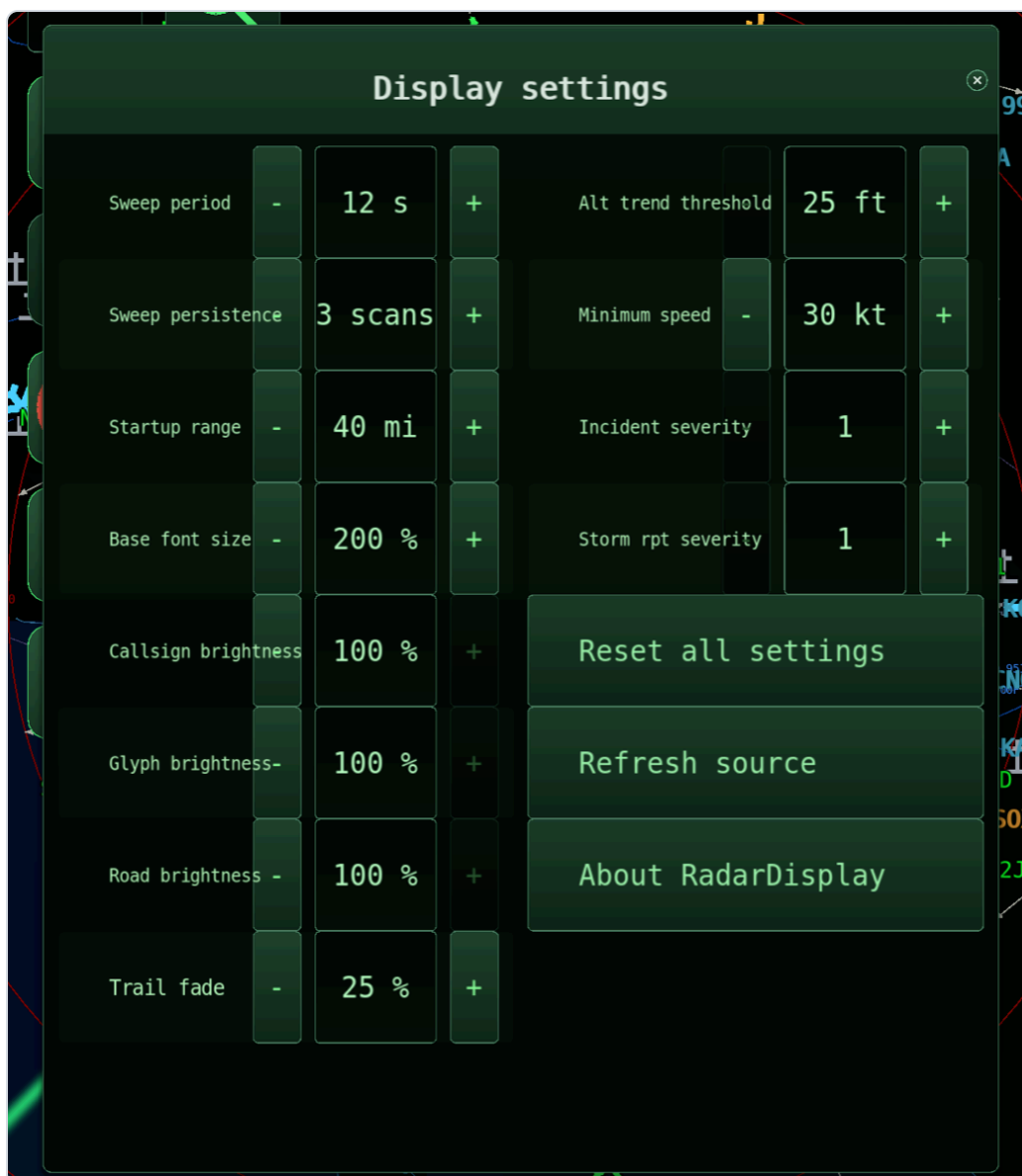
On a Mac, the cockpit opens in its own window.

Accessibility

RadarDisplay follows your system settings for Reduce Motion, Increase Contrast, Differentiate Without Color, and text size. Its on-screen controls are available to VoiceOver and Voice Control. Use **Base font size** in Display settings to make all text larger.

Display settings

Tap the settings badge to open Display settings. Use - and + to change each value. Changes apply and save immediately.



Display settings, with Reset, Refresh, and About.

Setting	What it does	Default
Sweep period	How long the beam takes to go round once, 4 to 30 seconds. It doesn't change how often data arrives.	12 s
Sweep persistence	How long an echo lingers after the beam passes, 1 to 12 scans, or Infinite.	3 scans
Startup range	How wide the scope opens, from 2 to 1,000 miles.	40 mi
Base font size	The size of all text, 100% to 250%.	200% on iPhone and iPad; 100% on Mac
Callsign brightness	How bright the text is, 25% to 100%.	100%

Setting	What it does	Default
Glyph brightness	How bright the symbols are, 25% to 100%.	100%
Road brightness	How bright the roads are, 25% to 100%.	100%
Trail fade	How dim the oldest end of a trail is, 10% to 100%. Applies while the sweep is on.	25%
Alt trend threshold	How much an aircraft must climb or descend to get a climb or descent marker, 25 to 200 ft.	25 ft
Minimum speed	Aircraft slower than this are hidden when Hide slow traffic is on, 10 to 100 knots.	30 kt
Incident severity	Which road incidents show: 1 all, 2 elevated and up, 3 severe only.	1
Storm rpt severity	Which storm reports show: 1 all, 2 damaging only, 3 tornado, funnel cloud, and waterspout only.	1

The panel also has three buttons:

- **Reset all settings:** puts every setting above back to its default. Your places and layer switches stay as they are.
- **Refresh source:** fetches the current feeds again now. Most feeds update on their own every minute or so.
- **About RadarDisplay:** shows the version.

Two more steppers live on the Layers tabs:

Setting	Where	Default
Trail points (aircraft)	Layers > ADSB	64
Trail points (ships)	Layers > Ships	64
Forecast hour	Layers > Synoptic	0 h

Layer switch defaults: every switch is on except **Roads**, **Track trails**, **Motion loop**, **Cloud cover**, and the Synoptic layers. The backdrop starts on **Precipitation**, and the sweep starts on.

Symbol reference

This chapter shows every mark RadarDisplay can draw on the scope and says what it means. The pictures are drawn from the app's own shapes and colors, enlarged so you can see the detail; on the scope they are smaller. Symbols get smaller as you zoom out past 40 miles and

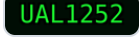
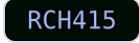
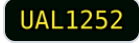
larger when you raise **Base font size**. **Glyph brightness** dims most symbols, and **Callsign brightness** dims the text beside them.

Most symbols open a details box when you tap them. Tap again to put it away.

Aircraft

Each aircraft points the way it is heading. Its shape comes from the aircraft category it broadcasts; if it broadcasts none, RadarDisplay guesses from the callsign. An airline-style callsign, or an aircraft above 18,000 ft or faster than 250 knots, is drawn with the swept-wing jet shape in its category’s color.

Symbol	Name	What it represents
	Light	A small fixed-wing aircraft, such as a private single-engine plane. Green. This is also the shape for any aircraft whose category isn’t listed below.
	High performance	A fast, highly maneuverable aircraft, such as a military jet or an aerobatic plane. The light-aircraft shape in amber.
	Large or Heavy	An airliner or other large aircraft that isn’t drawn with swept wings. Light blue, with a thicker body and longer wings than the light-aircraft shape.
	Swept-wing jet	A jet: an aircraft with an airline callsign, or flying above 18,000 ft or faster than 250 knots. The wings sweep back. The color still shows the category, so most are light blue airliners, and large and heavy jets have bolder strokes.
	Rotorcraft	A helicopter. Orange-red, drawn as a rotor disc with a tail boom pointing away from the direction of travel.
	Glider	A sailplane. Pale blue, with long straight wings and no tailplane.
	UAV	A drone or other uncrewed aircraft that broadcasts its position. A solid violet triangle.
	Surface vehicle	A vehicle or fixed obstacle on an airfield that broadcasts like an aircraft, such as an airport service truck. A gray square that doesn’t turn.
	Balloon	A balloon or airship. An envelope with a basket below it. It doesn’t turn with heading.
	Ultralight	An ultralight or hang glider. A shallow solid wedge.
	Parachute	A parachutist or skydiving aircraft reporting as a parachute. Drawn as a short bar with two posts. It doesn’t turn with heading.
	No type reported	An aircraft that reports no category and whose callsign gives no clue. A green diamond that doesn’t show heading.

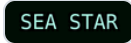
Symbol	Name	What it represents
	No motion reported	An aircraft that reports no category, no heading, and no speed. The diamond in cyan. Its callsign is cyan too.
	Military	An aircraft flagged as military in the aircraft database. Its usual shape, drawn in red with white and blue borders. Its callsign is pale blue.
	M or H mark	With Differentiate Without Color on in your system settings, an M beside an aircraft marks a military aircraft and an H marks a high-performance one, so you don't have to rely on color.
	Followed	The aircraft you are following, or whose cockpit view is open. It turns yellow and stays at full brightness, and its callsign and trail turn yellow too.
	Heading vector	A gray line with an arrowhead, running ahead of the aircraft in the direction it's heading. The faster the aircraft, the longer the line. On a Mac or iPad the line of a slow aircraft can be hidden under its symbol. Turn vectors on or off with Heading vectors in Weather > Layers > ADSB .
	Track trail	Green dots joined by a line, showing where the aircraft has been, newest nearest the aircraft. While the sweep is on, older dots are darker; set how dark with Trail fade . Set the length with Trail points .
	Climbing	Where the aircraft climbed between two trail points, purple triangles pointing up replace the line and the dot. The climb must be at least the Alt trend threshold setting (25 ft by default).
	Descending	Where the aircraft descended, yellow triangles pointing down replace the line and the dot.
	Callsign	The flight number or, if there is none, the registration, up to eight characters. Green, placed beside the aircraft where it doesn't overlap other labels. Turn callsigns on or off with Callsigns .
	Military callsign	The callsign of a military aircraft, in pale blue.
	Followed callsign	The callsign of the aircraft you are following, in yellow. It is placed first so it is never hidden by another label.

RadarDisplay doesn't mark emergency squawk codes on the scope. The squawk code appears only in the title bar of the cockpit view.

Ships

Each ship is drawn from above, bow first, with its hull length on the scope set by the length it reports. Its color shows what kind of vessel it is.

Symbol	Name	What it represents
	Cargo	A cargo vessel, such as a container ship or bulk carrier. Amber.
	Tanker	A tanker carrying oil, gas, or chemicals. Red-orange.
	Passenger	A passenger vessel, such as a ferry or cruise ship. Pink.
	High speed	A high-speed craft, such as a fast ferry. Yellow.
	Tug/pilot	A tug, a vessel towing, or a pilot boat. Mint green.
	Fishing	A fishing vessel. Leaf green.
	Sailing	A sailing vessel or pleasure craft. Pale gray-blue.
	Service	A working vessel, such as a dredger, diving vessel, search and rescue boat, law enforcement boat, or medical transport. Sky blue.
	Military	A military vessel. Olive.
	Unreported	A vessel that reports no type, or a type RadarDisplay doesn't group, such as wing-in-ground craft. Gray.
	Launch	A small boat, about 10 to 29 meters long. A short, wide hull with a deckhouse bar.
	Coastal	A vessel about 30 to 89 meters long, such as a tug or coaster.
	Large	A vessel about 180 to 299 meters long. The hull gets longer and gains deck lines as the ship gets bigger; a 90 to 179 meter ship, shown in the color rows above, has one deck line.
	Ultra	A vessel 300 meters or longer, such as a large container ship or tanker. The longest hull, with three deck lines.
	Size unknown	A vessel that reports no length, or less than 10 meters. A plain hull with no deckhouse.
	Followed	The ship you are following, or whose bridge view is open. It turns yellow at full brightness, and so do its name and trail.
	Last known position	A ship not heard from for 15 minutes or more. The hull is drawn hollow, at the last position received, and has no course line. After an hour, when you are zoomed in closer than 25 miles, a tag such as 2HR under it says how many hours ago it was last heard.

Symbol	Name	What it represents
	Course line	A gray line from the bow, with no arrowhead, pointing along the ship's heading. Its length shows about 30 minutes of travel at the ship's speed, up to a limit. A ship slower than half a knot, including one at anchor or moored, has no course line; otherwise an anchored or moored ship looks the same as one under way. Tap it to read its status.
	Ship trail	Teal dots with a faint line, showing where the ship has been. A new dot is added only when the ship has moved. Ship trails don't fade. Turn them on with Track trails in Weather > Layers > Ships .
	Ship name	The first eight characters of the ship's name, in pale mint, shown only when you are zoomed in closer than 25 miles. Ships without a name have no label. Tap the ship for its full name and details.

Fires

Turn fire symbols on with **Fire detections** on the Symbols tab.

Symbol	Name	What it represents
	Fire detection	A hot spot that a NASA satellite detected as a probable fire. Every detection is the same red flame; the flame's lean varies only so that neighboring detections are easier to tell apart. Tap it for the fire's power in megawatts and the detection confidence. This feed needs a NASA FIRMS key installed on the device, which the iPhone and iPad apps can't use yet, so fire detections appear only on a Mac that has one.
	Fire perimeter	The mapped outline of a named wildfire, shaded pale red with a red border and the fire's name at its center. It appears only while Fire detections is on. Tap it for details.

Road traffic and incidents

Turn incidents on with **Road incidents** on the Symbols tab, and traffic colors with **Traffic flow** on the Backdrop tab. Incident colors show how much the incident affects traffic. The **Incident severity** setting hides the less serious ones.

Symbol	Name	What it represents
	Road blocked	A traffic cone in red: a major incident or a closure that shuts every lane.
	Lanes affected	A traffic cone in amber: a minor incident, or a closure of some lanes.
	No traffic impact	A traffic cone in gray: an incident or roadwork with little effect on traffic, or a closure scheduled for later. A gray cone marked N REPORTS in its details groups several nearby reports.

Symbol	Name	What it represents
	Road weather	A traffic cone in cyan: a road-weather report from Virginia's feed. It is never hidden by the Incident severity setting.
	Crash, blocking	A car symbol marks a reported crash. Red means it blocks the road.
	Crash, lanes affected	A crash that affects some lanes.
	Crash, minor	A crash with little effect on traffic.
	Stopped traffic	A road drawn in red: traffic is at a standstill (5 % of normal speed or less) or the road is closed.
	Heavy traffic	A road drawn in orange: traffic moves at 30 % of normal speed or less.
	Slow traffic	A road drawn in yellow: traffic moves at 60 % of normal speed or less. Roads where traffic moves freely aren't colored.

Tap an incident for its type (such as crash, closed, work zone, or backup) and its description. Virginia's incident feed needs keys installed on the device, which the iPhone and iPad apps can't use yet; other states' feeds and the national feed need no setup.

Storm reports and alerts

Storm reports are what trained spotters and the public told the National Weather Service they saw. Turn them on with **Storm reports**. Color shows how serious the report is: red for rotation, amber for damaging weather, and green for everything else. The **Storm rpt severity** setting hides the less serious ones.

Symbol	Name	What it represents
	Tornado	A red triangle pointing down: a reported tornado, funnel cloud, or waterspout.
	Hail	An amber dot: reported hail.
	Wind	An amber chevron: thunderstorm wind damage or a damaging gust, on land or at sea.
	Flash flood	Two amber lines: a reported flash flood.
	Flood	Two green lines: a reported flood that isn't a flash flood.
	Lightning	A green bolt: lightning damage or injury that someone reported.
	Other	A green rain cloud: heavy rain, extreme heat, or any other kind of report.

Symbol	Name	What it represents
	Severe alert	A red outline around the area of a National Weather Service warning rated extreme or severe, such as a tornado or severe thunderstorm warning. Turn alerts on with NWS alerts . Only alerts issued for a drawn area are shown; alerts issued for whole counties or zones are not.
	Moderate alert	An orange outline: an alert rated moderate.
	Minor alert	A yellow-green outline: an alert rated minor or unrated.
	Hail >1 in	An ice-white dot where radar estimates hail at least one inch across has fallen. Turn it on with Hail >1 in .
	Larger hail	The dot grows and warms toward pink as the estimated hail size rises.
	Very large hail	The largest, orange-tan dot marks estimated hail about 2.75 inches across or bigger.
	Lightning flash	A pale yellow bolt: a lightning flash seen by satellite in the last five minutes. Turn bolts on with Lightning .
	Clustered	With density coloring on, an orange bolt has at least two other flashes within 6 miles.
	Intense	With density coloring on, a red bolt has at least nine other flashes within 6 miles: an active storm.
	Fading	Bolts dim as they age: slightly after one minute, more after three minutes. They disappear after five minutes.

Tap a storm report or a lightning bolt for details. Alert outlines and hail dots have no details box.

Tropical

Turn named storms on with **Tropical**, and their history and forecast with **Storm tracks** and **Forecast track** in **Weather > Layers > Weather**.

Symbol	Name	What it represents
	Tropical system	A named tropical system tracked by the National Hurricane Center, drawn as a yellow spiral that turns slowly. Depressions, storms, and hurricanes all use the same symbol; tap it to read its class, wind speed, and pressure.
	Storm track	Dim yellow dots joined by a line: where the system has been. Tap the storm and tap Clear track to wipe it.
	Forecast cone	A pale yellow shaded area with a thin border: the area the center of the storm is likely to pass through over the next five days. The storm can affect places well outside the cone.

Symbol	Name	What it represents
	Forecast track	A dashed yellow line through the forecast positions, with a small storm symbol and a time tag such as SAT 2P at each one. A storm symbol also flies along the track and pauses at the end, labeled with the time and forecast wind.

Aviation weather

Turn airport weather on with **Aviation WX** on the Symbols tab, and choose its parts with **Stations** and the switches under it in **Weather > Layers > Weather**. Tap a station for its full report.

Symbol	Name	What it represents
	VFR	A green dot at an airport with good flying conditions: visual flight rules.
	MVFR	A blue dot: marginal visual conditions, with a lowish cloud base or reduced visibility.
	IFR	A red dot: instrument conditions, with low cloud or poor visibility.
	LIFR	A magenta dot: very low cloud or very poor visibility.
	Wind barb	A line from the station pointing to where the wind is coming from. Each long tick is 10 knots and a short tick is 5 knots; this one shows 25 knots from the northwest. The barb is in the station's flight-category color. A station reporting variable wind has no barb.
	Calm	A ring round the station: wind under 3 knots.
	Station plot	The text round a station: temperature upper left and dewpoint lower left, in °F; altimeter setting upper right, in inches of mercury; cloud ceiling and visibility lower right; and the station identifier below, dimmer. Each part has its own switch: Temp / dewpoint , Altimeter , Ceiling / vis , and Station IDs .
	PIREP	A cyan hollow triangle: a pilot report of weather in flight. Tap it for the report. Turn reports on with PIREPS .
	Turbulence	An amber triangle: a pilot reported turbulence.
	Icing	A blue triangle: a pilot reported icing.
	Severe turbulence	A larger, bolder orange triangle: severe or extreme turbulence.
	Severe icing	A larger, bolder violet triangle: severe icing.
	Severe report	A larger, bolder blue triangle: another report marked severe.

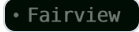
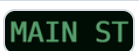
Symbol	Name	What it represents
	Convective SIGMET	A magenta outline: an area under a warning for thunderstorms. Turn warnings on with SIGMET areas .
	Turb / ice / IFR	An amber outline: a warning for severe turbulence, severe icing, low cloud and visibility, or mountain obscuration.
	Other SIGMET	A slate-gray outline: another warning, such as volcanic ash.
	G-AIRMET icing	A thin dark-blue outline: a forecast area of icing or a freezing level. Turn forecasts on with G-AIRMET areas .
	G-AIRMET turbulence	A thin brown outline: forecast turbulence at low or high level.
	G-AIRMET IFR	A thin dark-purple outline: forecast low cloud and visibility, or mountains hidden in cloud.
	G-AIRMET wind	A thin dark-green outline: forecast low-level wind shear or strong surface wind.
	Hazard fills	With Hazard fills on, each warning or forecast area is also shaded in its color, lighter for forecasts than for warnings.

Hazards and earth

Symbol	Name	What it represents
	Earthquake	A cyan mark of a ground line with two waves rising from it: a recent earthquake reported by the USGS. Every earthquake has the same size and color; tap it for the magnitude, depth, and place. Turn it on with Earthquakes .
	Major flood	A river gauge drawn as a staff on a footing. Red and larger: the river is at major flood stage. Turn gauges on with River gauges , and tap one for its reading.
	Flooding	An amber, larger gauge: the river is at action, minor, or moderate flood stage.
	Below flood	A small gray gauge: the river is below flood stage, or the gauge has no flood levels.
	Buoy	A light-blue buoy with a pennant: an offshore weather buoy, with its station number beside it. Tap it for wind, waves, and water temperature. Turn buoys on with Buoys ; they also need the ships badge on.
	High seas	A larger buoy: waves there are 3 meters (about 10 feet) or higher.

Symbol	Name	What it represents
	Launch	A white rocket at the launch pad of an upcoming launch, with the mission name and a countdown such as T-2D 4H in gold, or a date when the time isn't fixed yet. Tap it for the mission, rocket, and status. Turn it on with Launches .

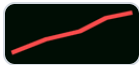
Map

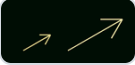
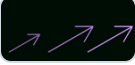
Symbol	Name	What it represents
	Place name	A gray dot and name for a town or city. Towns are hidden past 100 miles, and names that would overlap are dropped. Turn names on with Places & POI .
	Airport	A teal circle with a cross and the airport's code, shown when the airport's runways are too small to see at the current zoom.
	Runways	The airport's land as a dark shape with a gray border, and its runways as light gray lines drawn to scale, so you can see which way they point. Turn them on with Airports .
	Radar site	A solid amber diamond and code marking the weather radar the scope is using.
	Interstate	A wide gray line. Turn roads on with Roads , and dim them with Road brightness .
	US route	A medium gray line.
	State or local road	A thin olive line.
	Interstate shield	The red, white, and blue interstate shield with the route number.
	Route plaque	A gray plaque with the number of a US or state route. Both kinds of route use the same plaque.
	Road name	The name of a road without a route number, in green, along a long enough stretch of road.
	Coastline	A steel-blue line along the coast. It is always shown.
	Lake	A blue outline of a lake. Turn lakes and rivers on with Water .
	River	A darker blue line for a river, stream, or bay.
	Sea	A dark blue tint over the sea and large lakes. With no dots, forecast waves are under half a meter. The tint and dots appear only when you are zoomed in to 250 miles or less.
	Moderate sea	Blue dots on the water: forecast waves of half a meter or more. The more dots, the bigger the waves.

Symbol	Name	What it represents
	Rough sea	White dots: forecast waves of 2 meters (about 6.5 feet) or more.

Synoptic chart

These layers come from a weather forecast model and are switched on in **Weather > Layers > Synoptic**. **Forecast hour** steps them forward up to 24 hours. Every line has a faint band on the side where values are higher.

Symbol	Name	What it represents
	Isobar	A pale blue line joining places with the same sea-level pressure, every 4 hPa, labeled in hPa. Closely spaced isobars mean strong wind. Turn them on with Isobars + H/L .
	High	A blue H with its pressure: the center of a high-pressure area, which usually brings settled weather.
	Low	A red L with its pressure: the center of a low-pressure area, which usually brings unsettled weather.
	Shade pressure	A pale wash under the isobars, bluer where pressure is low (about 1001 hPa and below at full strength) and amber where it is high (about 1025 hPa and above).
	Cold front	A blue line: the leading edge of colder air. Fronts are drawn as plain colored lines without the usual triangles and half-circles, and they show the current analysis whatever the Forecast hour .
	Warm front	A red line: the leading edge of warmer air.
	Occluded front	A purple line: where a cold front has caught up with a warm front.
	Stationary front	A line alternating red and blue: a front that is barely moving.
	Trough	A thinner orange line: a trough, an elongated area of low pressure.
	Temperature	An orange line joining places with the same surface temperature, every 5 °C, labeled in °C.
	Dewpoint	A green line joining places with the same dewpoint, every 5 °C. Higher dewpoint means more moisture in the air.
	CAPE	A pink line at 500, 1000, 2000, 3000, and 4000 J/kg, showing how much energy the air has for thunderstorms. Higher values allow stronger storms.
	Freezing level	A pale blue line joining places where the freezing level is at the same height, every 2,000 ft.

Symbol	Name	What it represents
	Wind field	Arrows on a grid, pointing the way the surface wind blows. Stronger wind gives a longer, paler arrow, up to 40 knots.
	Show gusts	With Show gusts on, an arrow is stretched to the forecast gust, up to a bit over twice its length, and colored by the gust speed.
	Wind 500 MB	Cyan arrows: the wind at about 18,000 ft. Stronger wind is brighter, up to 80 knots; arrows stop growing longer at 40 knots.
	Wind 250 MB	Violet arrows: the wind at about 34,000 ft, where the jet stream flows.

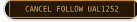
Backdrop color scales

The backdrop is chosen on the Backdrop tab of the Weather window. Each strip runs from the lowest value on the left to the highest on the right. Areas below the lowest value are left clear.

Symbol	Name	What it represents
	Precipitation	Radar echo strength, in steps: dark green for light rain or snow (below 20 dBZ), green, then yellow from 30 dBZ, orange from 40, red from 50, and magenta from 60 dBZ for the heaviest rain and likely hail.
	Rain	On the Precip type backdrop, blue marks rain.
	Snow	Pale pink-white marks snow.
	Convective	Green marks showery rain from thunderstorms.
	Rain + hail	Magenta marks rain mixed with hail.
	Tropical	Gold marks heavy tropical rain.
	Echo tops	How high storm tops reach, from low (dark blue-green) to high (magenta). Taller tops mean stronger storms.
	Hail size	Estimated largest hail, from 2 mm (dark teal) through yellow at about 31 mm to red at 60 mm (about 2.4 inches) and above.
	Liquid VIL	How much water a storm column holds, from 0.5 to 50 kg/m². Yellow and red show storms heavy with water or hail.
	Rain rate	How hard it is raining, from 0.2 mm/hr (dim teal) to 75 mm/hr (about 3 inches an hour, red) and above. Most ordinary rain falls in the dim first part of the scale.
	Doppler	The nearest radar's own picture. Its colors are the National Weather Service's standard reflectivity colors, supplied with the picture, rather than a scale set by RadarDisplay: greens for light rain, yellows and oranges for heavier rain, and reds and purples for the most intense cores. RadarDisplay doesn't show Doppler wind velocity.

Symbol	Name	What it represents
	Air quality	The US Air Quality Index, blended smoothly: green for good (up to 50), yellow for moderate (to 100), orange for unhealthy for sensitive groups (to 150), red for unhealthy (to 200), and purple for very unhealthy (to 300). Dark maroon, beyond the strip, means hazardous.
	Cloud cover	Satellite cloud cover drawn in grays, from faint gray for low, warm cloud to light gray for high, cold cloud tops. Clear sky is left empty. Cloud is drawn only where there is no precipitation.

Scope and controls

Symbol	Name	What it represents
	Range ring	A dark red ring at a fixed distance from home, labeled in miles at eight points round it. The spacing changes with zoom, from 1 mile to 50 miles or more. With the sweep on, a ring always marks the 250-mile limit of the sweep. Turn rings on or off with the range rings badge.
	Sweep	The bright green beam that sweeps round from the radar site, with the picture fading behind it. Set its speed with Sweep period and how long the picture lingers with Sweep persistence .
	Home	An amber diamond with a dot, marking home when you have panned away.
	Drive start	In Drive mode, a cyan crosshair where you turned Drive mode on.
	Drive trail	In Drive mode, a cyan line from the start to your current position.
	Your position	In Drive mode, a cyan car at the center of the scope, pointing the way you are traveling.
	Cancel follow	The amber plate at the top of the scope while you follow an aircraft or ship. Tap it to stop following. In Drive mode it reads Cancel drive .
	Menu	Shows or hides the controls on iPhone and iPad.
	Help	Describes the current feed and opens the user manual.
	Legend	Opens the key for the symbols on screen.
	Settings	Opens Display settings.
	Locations	Chooses where the scope is centered.
	Range rings	Turns range rings on or off. Red rings on a lit badge mean on; gray rings mean off.
	Air traffic	Turns aircraft on or off. A blue aircraft on a lit badge means on; gray means off.

Symbol	Name	What it represents
	Recenter	A green crosshair when the scope is home. Tap it to return to your startup range.
	Recenter (away)	The crosshair turns amber when you have panned away from home. Tap it to go back.
	Sweep	Turns the sweeping beam on or off.
	Sweep off	A slash through the badge means the sweep is off and the picture holds still.
	Weather	Opens the Weather window. The cloud takes the color of the current backdrop; for Precipitation it is blue with rain.
	Weather (none)	A gray cloud with a slash means the backdrop is set to None.
	Weather (Doppler)	Amber waves from a dot mean the backdrop is set to Doppler.
	Weather (air quality)	Three green lines mean the backdrop is set to Air quality.
	Search	Finds an aircraft or ship by callsign or name and follows it.
	Forecast	Opens the forecast for the selected place.
	Ships	Turns ships on or off. An amber ship on a lit badge means on; gray means off.
	Drive	Turns Drive mode on or off on iPhone and iPad. The wheel turns amber while Drive mode is on.
	Split screen	Shows the cockpit view beside the scope. The circle turns amber while the split screen is on.

Troubleshooting

The scope is empty or a feed shows nothing. Check your internet connection. Each feed comes from a public service and can be slow or down. Tap **Refresh source** in Display settings to fetch again. Some feeds are empty for good reasons: there may be no earthquakes, ships, or storm reports in range. Zoom out and check again.

The radar picture stops partway across the screen. Weather radar reaches about 250 miles from its site. Past that, the scope shows nothing rather than guessing.

Aircraft near an airport are missing. **Hide slow traffic** hides aircraft below the **Minimum speed** setting, which includes taxiing aircraft. Turn it off in **Weather > Layers > ADSB**, or lower **Minimum speed**. The change takes effect at the next fetch.

Enroute to doesn't appear, or names the wrong city. It appears only for airline flights with a published route. Private aircraft don't have one. The route comes from the airline's published schedule, so a diverted or renumbered flight can show the wrong city.

The cockpit shows Signal lost. The aircraft is no longer in the feed, often because it has landed or flown out of range.

Search shows No target with that callsign. Only aircraft and ships currently in range can be found. Check the callsign on the scope and try again.

Drive mode doesn't move the scope. RadarDisplay needs location access. Open the Settings app, go to **Privacy & Security > Location Services > RadarDisplay**, and choose **While Using the App**. The scope moves once your device has a position fix.

Road incidents are missing for a place. Road incidents come from different providers depending on the state, and not every area has coverage.

A town name disappears when I zoom out. Fewer place names show at wider ranges so they don't overlap. Zoom in to see more.

Privacy

RadarDisplay doesn't collect data for Endogen LLC and has no account or analytics.

- **Location:** with your permission, Drive mode uses your device's position on your device to center the scope. Your saved places are ZIP codes stored on your device.
- **Data requests:** to draw the scope, the app asks public data services for the area around the scope's center. These include NOAA and the National Weather Service, NASA, USGS, the US Census Bureau, the USGS National Map, the National Hurricane Center, adsb.fi, Open-Meteo, The Space Devs, OpenStreetMap, and state transportation agencies. Each service receives the area it is asked about, as any website would.
- **Ships and road traffic:** these come through RadarDisplay's own data cache, which asks the upstream providers on the app's behalf. The app sends it the area around the scope's center; the cache stores areas rounded to a coarse grid.
- **Settings:** your settings, layers, and places are stored on your device.

For the full policy, see the [Endogen LLC privacy.policy](#).

Support

For questions or problems, email support@endogenllc.com.

For product information, see the [RadarDisplay page](#).