AGUACEROWX IN-DEPTH GUIDE

Drawing, ruler and mouse readouts

Three quick map tools for briefing and analysis. Drawing lets you sketch freehand over any data to circle a storm or mark a path. The ruler measures straight-line distance and bearing with a range ring, and mouse readouts show every layer’s value under the cursor, which you can pin to the map and style for on-air use.

01 Quick start: sketch, measure and read a value
02 Draw freehand on the map
03 Erase, undo and clear
04 How drawings behave across panels, time and exports
05 Measure distance and bearing
06 Style the ruler
07 Read values under the cursor
08 Choose what readouts show
09 Pin readouts to the map
10 Style readouts: hover and pinned, and what they contain
11 Readout fonts, colors and text outline
12 Readout background, outline and shadow
13 Keyboard shortcuts for these tools
14 Where these settings are saved
15 Recipe: a telestrated storm briefing
16 Recipe: clean on-air values with pinned readouts
17 Common questions

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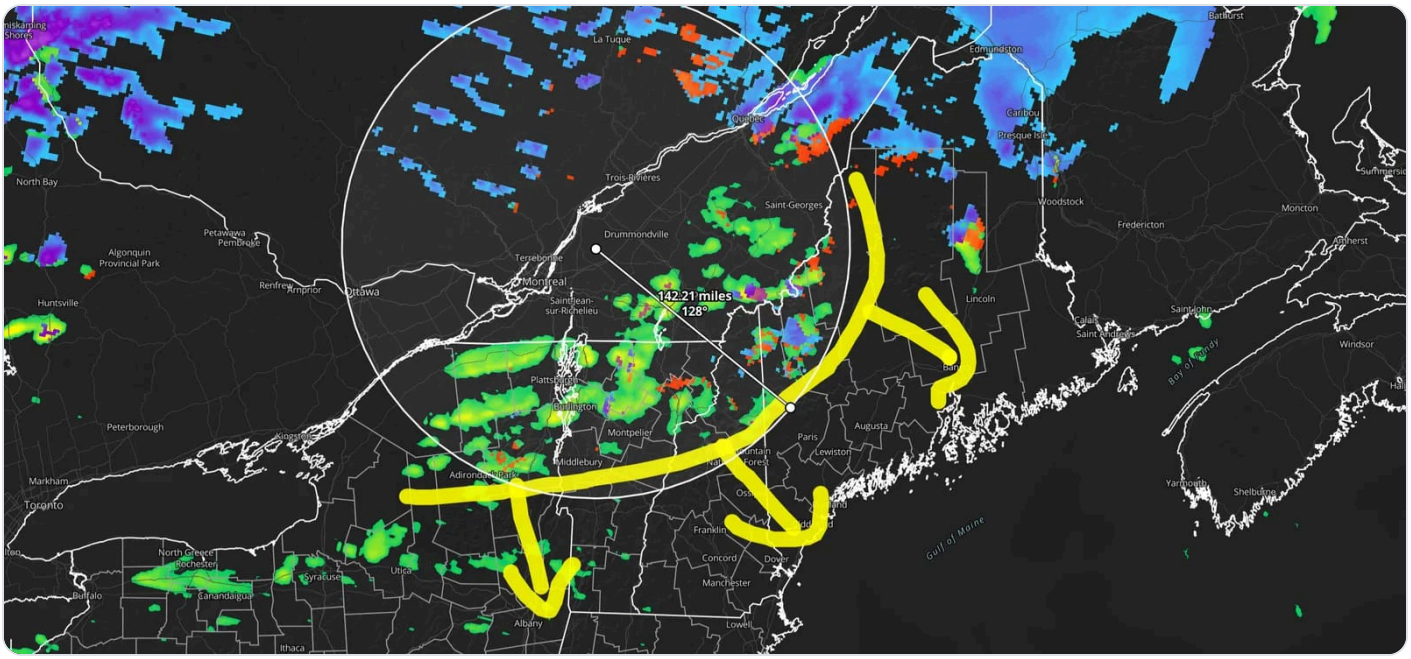
BEFORE YOU START

- All three are on the desktop toolbar, after **PGEN**: **Drawing** (pencil), **Mouse readouts** (target) and **Ruler**. On a phone, tap the arrow beside the tool button at the right end of the top bar and pick the target (**Switch to Center Readout**), the ruler (**Switch to Measure Distance**) or the pencil (**Switch to Drawing Tool**). The tool button itself (**Toggle Active Tool**) turns the picked tool on or off.
- **Drawing** turns on with a single click. **Mouse readouts** and **Ruler** open their settings with a single click and turn on or off with a double-click.
- All three work on every plan, signed in or not. Signing in saves your ruler and readout settings to your account.
- Drawings and pinned readouts last for this session only. They are not saved with bundles or workflows.

01 Quick start: sketch, measure and read a value

Use all three tools on one map in under a minute.

1. Click **Drawing** on the toolbar. The drawing toolbar opens near the bottom of the screen.
2. Press and drag on the map to draw. Circle a storm or sketch its path.
3. Click the × (**Close Drawing**) on the drawing toolbar. Your drawing stays on the map.
4. Double-click **Ruler**. Press on the map at a start point, drag to an end point and release. The distance and bearing appear on the line.
5. Double-click **Ruler** again to stop measuring. The measurement clears.
6. Move the mouse over the map. The readout next to the cursor lists each layer’s value. If it doesn’t appear, double-click **Mouse readouts** to turn it on.
7. Click the map to pin the readout there.

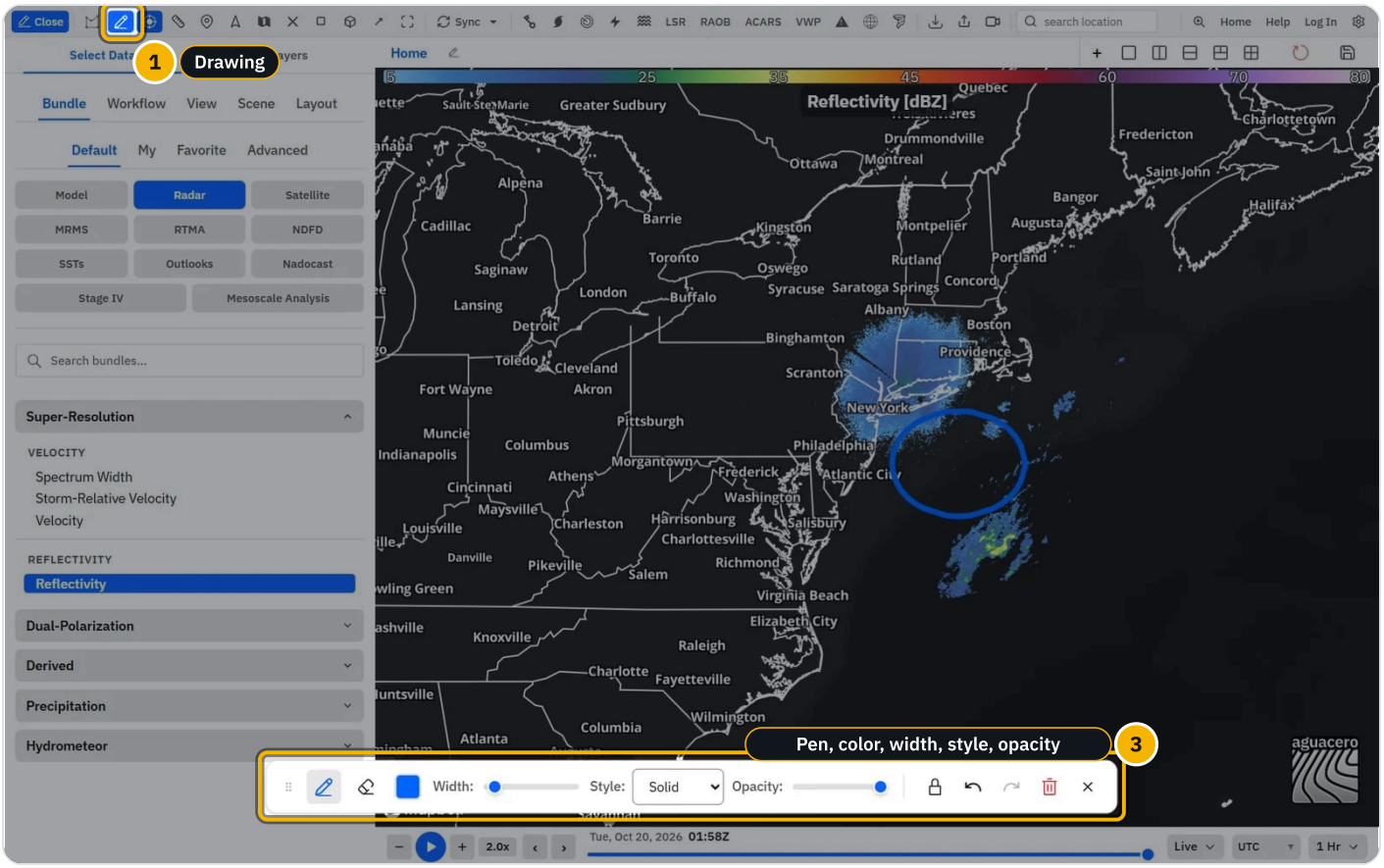


Freehand arrows and a ruler range ring drawn over radar.

02 Draw freehand on the map

A pen and eraser for quick markup over any data: circle a hook echo, sketch a storm's path or underline a boundary.

1. Click **Drawing** on the toolbar (tooltip **Drawing Tool**). The drawing toolbar opens at the bottom center of the screen, and the cursor turns into a crosshair.
2. Choose **Pen**. Click the color swatch (**Change drawing color**) and pick a color.
3. Set **Width**, **Style** and **Opacity**.
4. Press and drag on any map panel. Release to finish the stroke.
5. To move the map without closing the tool, click the lock button (**Unlock to Pan Map**). Click it again (**Lock to Draw**) to keep drawing.
6. Click **Drawing** on the toolbar again, or **Close Drawing** on the drawing toolbar, to put the tool away. Your drawings stay on the map.



The Drawing button and the drawing toolbar, with an area circled on the map.

DRAWING TOOLBAR	
Pen	Draws a new stroke each time you press and drag. Selected when the tool opens.
Eraser	Erases the parts of strokes you drag over. See the next section.
Change drawing color	The color swatch. Opens a color picker. Default blue. The new color applies to the next strokes, not ones already drawn. Greyed out while **Eraser** is on.
Width	1–100 px, default 6 px. The pen's line width, and the eraser's size. The tooltip shows the current value.
Style	**Solid** (default), **Dashed** or **Dotted**. Greyed out while **Eraser** is on.
Opacity	10–100% in steps of 10, default 100%. The tooltip shows the current value. Greyed out while **Eraser** is on.

Lock to Draw	The lock button. Locked (the default when the tool opens), pressing on the map draws. Unlocked, the map pans and zooms as usual and the toolbar stays open. Its tooltip names what the next click does: **Unlock to Pan Map** or **Lock to Draw**.
Undo	Takes back the last stroke, erase or **Clear All**. Greyed out when there is nothing to undo.
Redo	Puts back what **Undo** took away. A new stroke empties the redo list.
Clear All	The trash button. Removes every drawing on every panel. **Undo** brings them back.
Close Drawing	The **×**. Closes the tool. Drawings stay on the map.

TIPS

- Drag the drawing toolbar by its grip or any empty spot to move it. It returns to the bottom center the next time you open it.
- Each stroke keeps the color, width, style and opacity it was drawn with, so you can mix colors in one sketch.
- Turning on **Drawing** turns the ruler off.

03 Erase, undo and clear

Fix part of a stroke with the eraser, step back with Undo, or wipe the map with Clear All.

1. Click **Eraser** on the drawing toolbar. A ring follows the cursor to show the eraser’s size.
2. Set **Width** to the eraser size you want. The ring’s diameter equals **Width** in pixels.
3. Drag over the part of a stroke you want to remove. Only the part under the ring goes away; the rest of the stroke stays, split into pieces if needed.
4. Click **Pen** to draw again.

TIPS

- One eraser drag is one step for **Undo**, however many strokes it touched.
- **Width** is shared by the pen and the eraser. Set it back after erasing if you made it large.
- **Clear All** can be undone, but only until you reload the app.

04 How drawings behave across panels, time and exports

Drawings are pinned to places on the map, shared by every panel, and kept until you clear them or reload.

TIPS

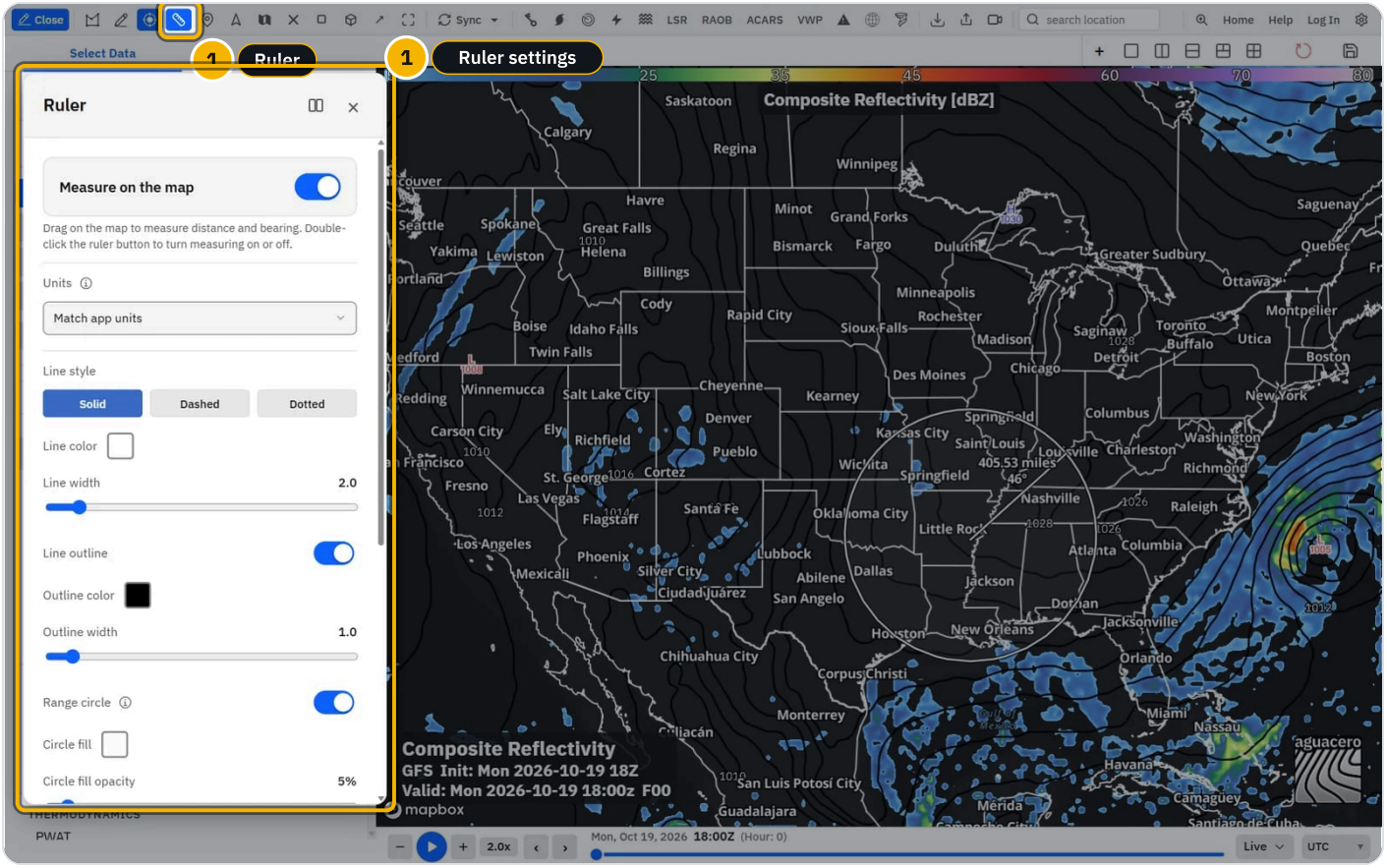
- Every panel and board shows the same drawings. Draw on any panel and the stroke appears at the same spot on all of them, which helps when you compare models side by side.
- Strokes are tied to map locations. They pan and zoom with the map, but their width stays the same number of screen pixels at every zoom.
- Drawings don’t change when you step or play through time. They stay until you erase or clear them.
- Drawings stay on the map after you close the tool. To remove them, open the tool and use **Eraser** or **Clear All**.
- Drawings, and the drawing settings, last until you reload or close the app. They are not saved in bundles, workflows or your account.
- Drawings are part of the map, so image, GIF and video exports include them.
- When a Skew-T, meteogram or cross-section window is open on the board, the pen also draws on top of that window. Those strokes still belong to the map underneath, so they move if you pan.
- On a phone, opening a sounding pauses the drawing tool, and it comes back when you close the sounding.

05 Measure distance and bearing

Drag between two points to get the straight-line (great-circle) distance and the bearing, with a range circle around the start point.

1. Double-click **Ruler** on the toolbar, or single-click it and turn on **Measure on the map**. The button lights up and the cursor turns into a crosshair.
2. Press on the map at the start point, such as a storm, and drag to the end point, such as a town.

3. Release. The line stays with its distance and, below it, the bearing.
4. Drag again to measure something else. The previous measurement on that panel clears.
5. Double-click **Ruler** again to stop. All measurements clear.



A ruler measurement with its range circle, and the Ruler settings window.

The label reads like 104.37 miles, with 62° on the line below. The distance has two decimals in the unit you chose (miles, km or nmi). The bearing is in whole degrees from 0° to 359°, measured clockwise from true north at the start point toward the end point. The range circle is centered on the start point with a radius equal to the measured distance, so it shows everywhere that is the same distance away.

TIPS

- Each panel keeps its own measurement, so you can measure a different distance on each panel of a layout.
- The distance is a straight line over the earth’s surface, not a road distance.
- While the ruler is on, clicking the map measures instead of pinning a mouse readout. Pin your readouts first, then measure.
- On a phone, tap the arrow beside the tool button in the top bar, pick the ruler (**Switch to Measure Distance**), then drag with one finger. **Ruler** in the menu opens its settings.

06 Style the ruler

Choose the units, the line, the range circle and the distance label. Changes redraw the current measurement right away.

Single-click **Ruler** to open the **Ruler** window. Every setting applies to all panels.

MEASURING	
Measure on the map	Turns the ruler on or off. Same as double-clicking the toolbar button.
Units	**Match app units** (default) uses miles or kilometers from your unit preference. **Miles**, **Kilometers** and **Nautical miles** always use that unit.

LINE	
Line style	**Solid** (default), **Dashed** or **Dotted**. Also styles the range circle’s edge.
Line color	Default white. Also colors the range circle’s edge and the endpoint dots.
Line width	1–12 px in steps of 0.5, default 2.0.
Line outline	A contrasting edge around the line, circle edge and endpoint dots. Default on.

Outline color	Default black. Shown while **Line outline** is on.
Outline width	0.5–8 px in steps of 0.5, default 1.0. Added on each side of the line.

RANGE CIRCLE AND ENDPOINTS	
Range circle	Draws the circle around the start point. Default on.
Circle fill	The color inside the circle. Default white. Shown while **Range circle** is on.
Circle fill opacity	0–100%, default 5%. Raise it to shade the area inside the range.
Endpoint dots	Dots at both ends of the line. Default on.

DISTANCE LABEL	
Distance label	The label font. Default **Open Sans Bold**. Fonts you upload in **Settings** → **Fonts** (Professional and above) are listed first. The label size is fixed.
Show bearing	Adds the bearing in degrees on a second line. Default on.
Label color	Default white.
Label outline	A halo around the label text. Default on.
Label outline color	Default black. Shown while **Label outline** is on.
Label outline width	0.5–6 px in steps of 0.5, default 1.5.

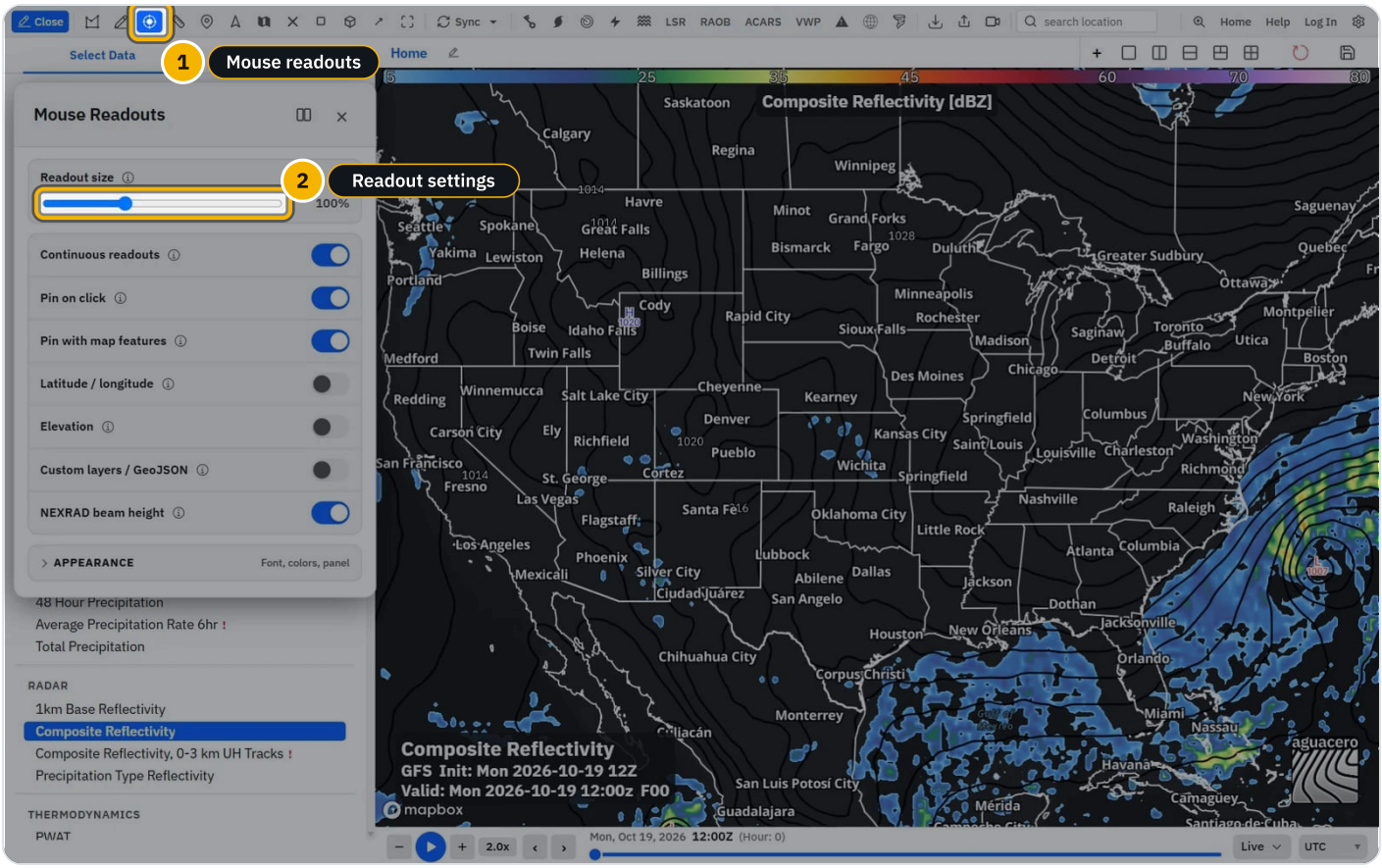
TIPS

- For an on-air range ring, set **Line style** to **Dashed**, **Line width** to 3, a bright **Line color** and **Circle fill opacity** around 15%.
- Use **Nautical miles** for aviation and marine work.

07 Read values under the cursor

A live readout next to the cursor lists the value of every layer on the panel, plus coordinates, elevation and radar beam height if you want them.

1. Single-click **Mouse readouts** on the toolbar. The **Mouse Readouts** window opens.
2. Make sure **Continuous readouts** is on. It is on by default, and a double-click on the toolbar button turns it on or off.
3. Turn on any extras: **Latitude / longitude**, **Elevation**, **Custom layers / GeoJSON** or **NEXRAD beam height**.
4. Move the cursor over a panel. The readout lists each layer's value at that point, with its units.



The Mouse Readouts window: what each readout shows, with the Appearance section below.

TIPS

- The readout follows the panel under the cursor, so in a multi-panel layout each panel shows its own layers.
- On a phone there is no cursor. A crosshair sits in the middle of the map and the readout shows the values under it; pan the map to move it. Turn it on by picking the target (**Switch to Center Readout**) from the tool button's arrow, and open its settings with **Mouse Readouts** in the main menu.
- Mouse readouts are different from point readouts, which print values across the map or at cities and name markers. Those are set per layer.

08 Choose what readouts show

The top of the Mouse Readouts window sets the size, the pin behavior and the extra rows.

MOUSE READOUTS	
Readout size	70–160%, default 100%. Scales both live and pinned readouts. They also adjust to your screen size.
Continuous readouts	Shows live values beside the cursor. Default on. Pinned readouts and the options below still work when it is off.
Pin on click	A left-click on the map pins the current readout as a popup. Default on.
Pin with map features	Shown while **Pin on click** is on. Also pins when you click a warning, outlook or other map feature that opens its own popup. Default on. Turn it off to get only the feature's popup.
Latitude / longitude	Adds the coordinates to live and pinned readouts. Default off.
Elevation	Adds terrain height from Mapbox elevation data, in feet or meters by your unit system. Default off.
Custom layers / GeoJSON	Adds the attributes of custom layer and GeoJSON features under the cursor. Default off. Custom layers need Professional.
NEXRAD beam height	Adds the radar beam's height at the cursor, in kft or km, to radar readouts. Default on.

Coordinate format	Shown while **Latitude / longitude** is on. **Decimal degrees** (default, 35.1234), **Degrees & minutes** (35° 7.4′) or **Degrees, minutes & seconds** (35° 7′ 24″).
Longitude range	Shown while **Latitude / longitude** is on. **-180° to 180° (E / W)** (default; west is negative, as usual in the US) or **0° to 360°** (always positive).

The **Appearance** section at the bottom (**Font, colors, panel**) styles the readouts. It is covered in the next sections.

09 Pin readouts to the map

Keep a readout on the map as a popup. Pins update as you step through time, and they appear in exports.

1. With **Pin on click** on, click the map. A popup with every layer’s value at that point stays there.
2. Or press `Alt` + `Shift` and click. That always pins, even with **Pin on click** off and even on a warning or other map feature.
3. Click the **×** on a pin to remove it, press `Backspace` to remove the newest pin on the active panel, or `Shift` + `Backspace` to remove them all.

TIPS

- Pins belong to the panel you clicked. Their values refresh when you change the time or the layers on that panel. A layer you remove drops out of the pin, and a pin with no values left disappears.
- Pins appear in image, GIF and video exports. Live cursor readouts never do, so pin any value you want in an export.
- Clicking doesn’t pin while the ruler, a cross section, a box sounding or the storm tracker is drawing, while the PGEN window is open, or while you pick highlight areas.
- Pinning needs a mouse, so it isn’t available on a phone.
- `Backspace` closes the newest feature popup or storm-track popup on the panel first, then pinned readouts.

SHORTCUTS

`Alt` + `Shift` + click	Pin a mouse readout (rebind under **Map & tools** as **Pin mouse readout**)
`Backspace`	Remove the most recent pinned readout on the active panel
`Shift` + `Backspace`	Clear every pinned readout on the active panel
`Shift` + `Delete`	Same as `Shift` + `Backspace`

10 Style readouts: hover and pinned, and what they contain

Live and pinned readouts have separate styles. Choose which you are editing, then set what each row shows.

1. In **Mouse Readouts**, open **Appearance** at the bottom.
2. Click **Hover** to style the live cursor readout, or **Pinned** to style pinned popups. The window opens on **Pinned**.
3. Watch the preview box. It shows two sample rows (Temp and Dewpoint) in the current style.
4. Click **Reset hover style** or **Reset pinned style** at the bottom to go back to the defaults for that tab.

LINKING

Use the same appearance as hover	Pinned tab only. Default off. Pinned popups copy the hover look, and the look controls on the **Pinned** tab are greyed out. The content options below stay separate for each tab.

CONTENT

Show field labels	Shows the layer name above each value. Default on. Off shows values only, like point readouts.
Show units	Shows units after each value. Default on.
Degree symbol only (hide °C / °F / K)	Shown while **Show units** is on. Temperatures end in ° alone. Default off.
Decimal places	**Auto** (default; chosen per field), **0**, **1** or **2**.

Show pointer tail	Pinned tab only. A small tail points from the popup to the spot you clicked. Default on.
Show close button	Pinned tab only. The **×** on each pin. Default on. `Backspace` and `Shift` + `Backspace` still remove pins when it is off.
Alignment	**Left** (default) or **Center**.

11 Readout fonts, colors and text outline

Set the typeface, size and colors of the values and labels, or let the colors follow the data.

TYPE	
Type	The font family. Default Roboto Mono for hover and IBM Plex Sans for pinned. Uploaded fonts are listed first.
Bold	Default on.
Italic	Default off.
Font size	8–32 px, default 12 px. **Readout size** scales this further.
Value color	The color of the values. Default white for hover and **Theme** for pinned.
Label color	Shown while **Show field labels** is on. Default light grey for hover and **Theme** for pinned.
Theme	Pinned tab only, next to **Value color**, **Label color**, **Background** and the popup **Outline color**. Makes that color follow the app's light or dark theme.
Text color matches data	Colors each value with the layer's color at that value, so 95 °F shows in the colormap's red. Default off.

TEXT OUTLINE	
Text outline	A halo around the text. Default off. Useful without a background.
Outline color	Default black.
Outline width	0.5–6 px in steps of 0.25, default 2 px.
Outline matches data	Uses the data color for the halo instead. Default off.

12 Readout background, outline and shadow

Shape the box behind the values: solid or gradient, see-through or not, with an outline, rounded corners and a shadow.

BACKGROUND	
Show background	Draws a box behind the rows. Default on. The options down to **Drop shadow** appear while it is on.
Fill	**Solid** (default) or **Gradient**.
Background	The box color. Named **Color 1** with **Gradient**. Default black for hover and **Theme** for pinned.
Color 2	Gradient only. The second color. Default very dark grey for hover and dark navy for pinned.
Angle	Gradient only. 0–360°, default 180°.
Opacity	0–100%. Default 80% for hover and 100% for pinned.
Background matches data	Tints the box with the data color. Default off.
Popup outline	A border around the box. Default off for hover and on for pinned.
Outline color	Default white for hover and **Theme** for pinned.
Outline width	0.5–6 px in steps of 0.25, default 1 px.

Outline matches data	Colors the border with the data color. Default off.
Corner radius	0–20 px. Default 4 px for hover and 8 px for pinned.
Padding	0–18 px. Default 6 px for hover and 8 px for pinned.
Drop shadow	A soft shadow under the box. Default off for hover and on for pinned.

SPACING AND RESET

Row spacing	0–12 px. Hover puts it between the label and the value, and between fields. Pinned puts it between fields. Default 2 px for hover and 4 px for pinned.
Reset hover style	On the **Hover** tab: returns every hover setting to its default. On the **Pinned** tab the button reads **Reset pinned style**.

13 Keyboard shortcuts for these tools

Pin and clear readouts from the keyboard, and bind your own keys to turn each tool on or off.

SHORTCUTS

`Alt` + `Shift` + click	Pin a mouse readout at the click
`Backspace`	Remove the newest popup or pinned readout on the active panel
`Shift` + `Backspace`	Clear all pinned readouts and popups on the active panel

These start without a key. Bind them in **Settings** → **Keyboard shortcuts**:

SETTINGS

Toggle drawing tool	Under **Map & tools**. Same as clicking **Drawing**.
Toggle ruler	Under **Map & tools**. Same as double-clicking **Ruler**.
Toggle mouse readouts	Under **Map & tools**. Same as double-clicking **Mouse readouts**.

Toggle pin readout on click	Under **Map & tools**. Same as the **Pin on click** checkbox.
Ruler settings	Under **Toolbar modals** (desktop only). Opens the **Ruler** window.
Mouse readouts settings	Under **Toolbar modals** (desktop only). Opens **Mouse Readouts**.
Pin mouse readout	Under **Map & tools**. Change the `Alt` + `Shift` + click combo here.

14 Where these settings are saved

Readout and ruler settings follow your account; drawings and measurements don't outlive the session.

TIPS

- Mouse readout settings and both readout styles save to your account when you are signed in, and load on any device. Signed out, they reset when you reload.
- Ruler settings save to your account the same way. Measurements themselves clear when you turn the ruler off or reload.
- Drawings and the drawing toolbar's color, width, style and opacity last until you reload. They are not saved anywhere.
- Pinned readouts last until you remove them or reload.
- Opening a workflow never changes your ruler or readout settings; they are yours, not the workflow's.
- **Settings** → **Mouse readouts** holds the same window as the toolbar button.

15 Recipe: a telestrated storm briefing

Circle a storm, sketch its path, pin key values and show the distance to the next town, then export the frame.

1. Load NEXRAD reflectivity and zoom to the storm.
2. Click **Drawing**. Pick red with **Change drawing color**, set **Width** to 8 and circle the storm's core.
3. Set **Style** to **Dashed** and **Width** to 5, and draw the expected path. Add two short strokes at the end for an arrowhead.

4. Click **Close Drawing**. The sketch stays.
5. In **Mouse Readouts**, turn on **Latitude / longitude** if you want coordinates, then `Alt` + `Shift` + click the storm core to pin its values.
6. Single-click **Ruler**. Set **Line color** to yellow, **Line style** to **Dashed** and **Circle fill opacity** to 15%. Turn on **Measure on the map**.
7. Drag from the storm to the town in its path. The label shows how far away it is and the bearing, and the circle shows every place at that distance.
8. Export the frame or loop. The sketch, the pin and the ruler are all part of the map.

16 Recipe: clean on-air values with pinned readouts

Turn pinned readouts into large, color-coded value tags for a broadcast or stream, with no cursor clutter.

1. Open **Mouse Readouts**. Turn **Continuous readouts** off so no live readout follows your cursor on air, and turn **Pin on click** off so stray clicks don’t pin.
2. Set **Readout size** to 130%.
3. Open **Appearance** and choose **Pinned**. Turn off **Show field labels**, keep **Show units** and turn on **Degree symbol only (hide °C / °F / K)**. Set **Decimal places** to 0 and **Alignment** to **Center**. Turn off **Show close button**.
4. Turn on **Bold**, set **Font size** to 22 and turn on **Text color matches data**, so each temperature takes its colormap color.
5. Keep **Show background** on. Set **Fill** to **Gradient**, pick a dark **Color 1** and **Color 2**, **Opacity** 90%, **Corner radius** 10 px and **Padding** 10 px. Turn on **Popup outline** with **Outline matches data**, and keep **Drop shadow** on.
6. Add a temperature layer, then `Alt` + `Shift` + click each city you want to show. Step through time and the tags update.
7. Press `Shift` + `Backspace` to clear the panel for the next segment.

TIPS

- For tags at every city or at your own client sites without clicking, use point readouts set to city, and name markers.

17 Common questions

Answers to the questions people ask most about drawing, the ruler and mouse readouts.

My drawings disappeared after I reloaded. Can I get them back?

No. Drawings last for the session only and aren't saved in bundles, workflows or your account. Export an image if you need to keep one. For maps you want to save and reopen, use PGEN products.

Why does my drawing show on every panel?

All panels and boards share one set of drawings, placed by map location. Use **Eraser** or **Clear All** to remove them.

How do I move the map while the drawing tool is open?

Click the lock button (**Unlock to Pan Map**). The map pans and zooms normally until you click it again (**Lock to Draw**).

Why are the color, Style and Opacity controls greyed out?

Eraser is selected. Click **Pen** to change them. **Width** stays active because it sets the eraser's size.

Can I draw arrows, text, shapes or fronts?

Not with the freehand pen; sketch arrows from strokes. For text, shapes, fronts, hatched areas and saved products, use **PGEN**.

Why does a line look thinner or thicker after I zoom?

Line width is measured in screen pixels, so it stays the same on screen while the map scales under it.

My ruler measurement vanished. Why?

A new drag on the same panel replaces it, and turning the ruler off clears every measurement. Turning on **Drawing** also turns the ruler off.

What does the degree number on the ruler mean?

It is the bearing from the start point to the end point, clockwise from true north: 0° is north, 90° east, 180° south and 270° west. Turn it off with **Show bearing**.

Can I make the ruler label bigger?

The label size is fixed. You can change its font, color and outline in the **Ruler** window.

Clicking the map doesn’t pin a readout. Why?

Check that **Pin on click** is on, or use `Alt` + `Shift` + click. Pins also don’t happen while the ruler, a cross section, a box sounding or the storm tracker is drawing, while the PGEN window is open, or on a phone. If you clicked a warning, turn on **Pin with map features**.

Why did my pinned values change?

Pins refresh when the time or the layers on their panel change, so they always match the map you see.

Why isn’t the cursor readout in my exported image?

Live cursor readouts are left out of exports on purpose. Pin the values you want; pins are included.

The cursor readout isn’t showing at all.

Continuous readouts may be off; double-click **Mouse readouts** on the toolbar to turn it on. The readout also needs at least one data layer, or an extra such as **Latitude / longitude**, to have anything to show.

Can I make readouts bigger without changing every style setting?

Yes. **Readout size** scales both live and pinned readouts from 70% to 160%.