

Building the Nevados Operations & Monitoring Dashboard

How a ground-up platform brings real-time intelligence to all-terrain solar tracking — from MQTT ingestion to field-ready controls.

37%

Max slope — unmatched in the industry

2 GW+

Solar capacity currently in process

1 GW+

Operating capacity monitored today

The Challenge

At Nevados, our core product — the TRACE All Terrain Tracker — features articulating technology that enables projects to be built on slopes of up to 37%, an unmatched capability in the industry. As the company has grown to over 2 GW in process, it became clear that the tracker's sophistication demanded an equally capable operational platform.

Field teams needed a single pane of glass to monitor, diagnose, and act on sites spread across the United States — all without needing to be on-site. That meant building something purpose-built, not retrofitted from generic SCADA tooling.

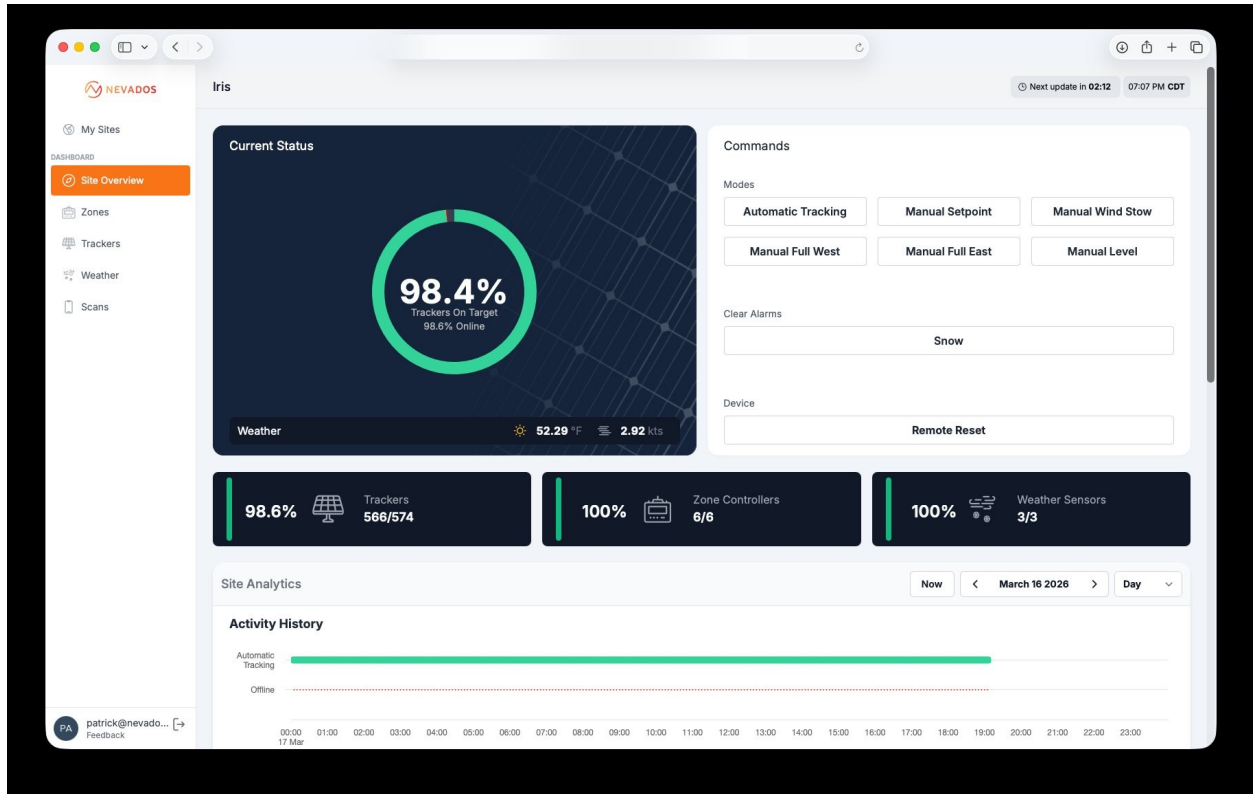
Building From the Ground Up

Nevados contracted with Zentered, who built the Operations & Monitoring Dashboard for the TRACE All Terrain Tracker from scratch, beginning in August 2022. The platform spans the full stack:

- MQTT ingestion pipeline — receives real-time telemetry from every tracker in the field
- TDEngine time-series database — purpose-built for high-frequency device data
- Fastify GraphQL API — with row-level multi-tenant security
- React dashboard — designed for the people who run solar farms day to day

Site Health at a Glance

The dashboard gives operators an immediate read on an entire site: what percentage of trackers are on target, how many zone controllers are online, and whether weather sensors are reporting. From there, teams can drill down to any zone or individual tracker when something needs attention.

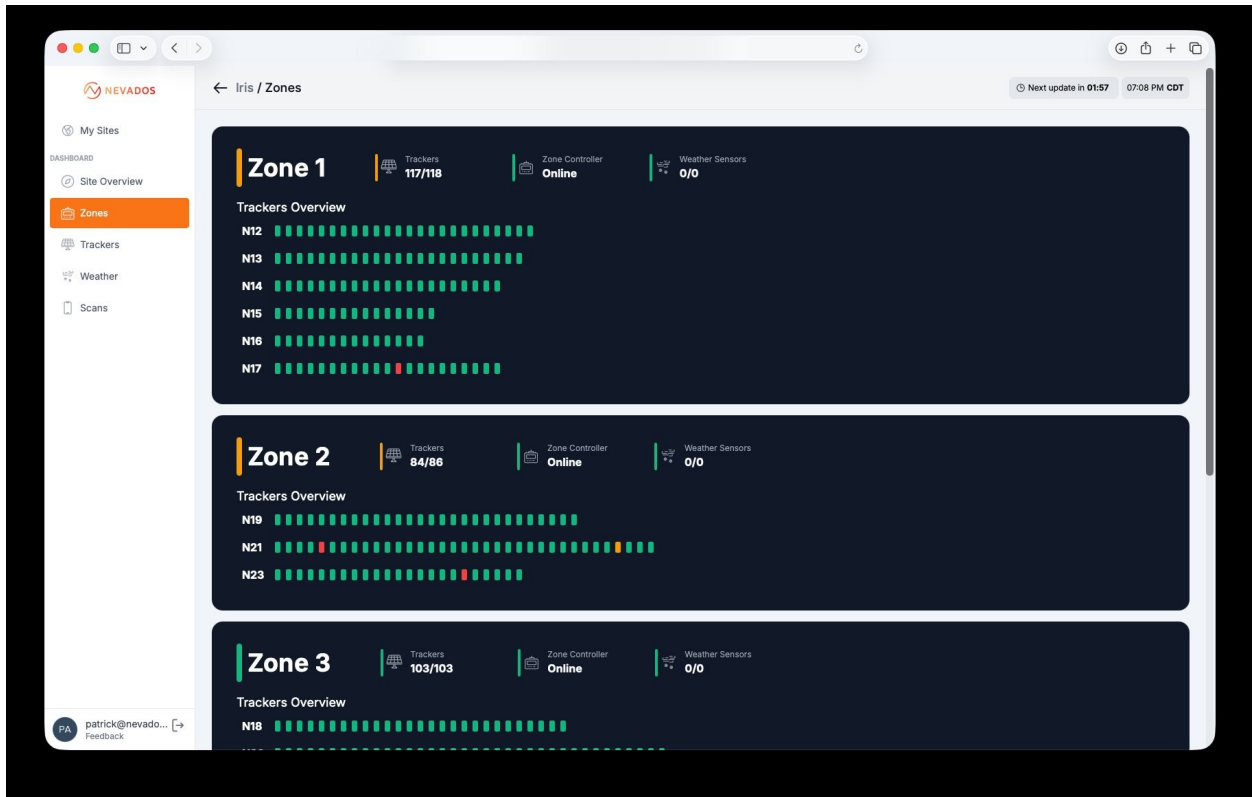


Site overview for the Iris site — 98.4% of trackers on target, 566/574 trackers online, all zone controllers and weather sensors reporting. Activity history confirms a full day of automatic tracking with no offline periods.

Commands like automatic tracking, manual wind stow, and remote device reset are available directly from the dashboard, reducing the time between spotting a problem and acting on it. Operators also have manual control of the array for landscape maintenance activities.

Zone-Level Visibility

When something needs attention, operators can drill down from the site level into individual zones and trackers. Each zone displays a row-by-row health grid — green for healthy units, red or amber where attention is needed — making it fast to identify and isolate issues.



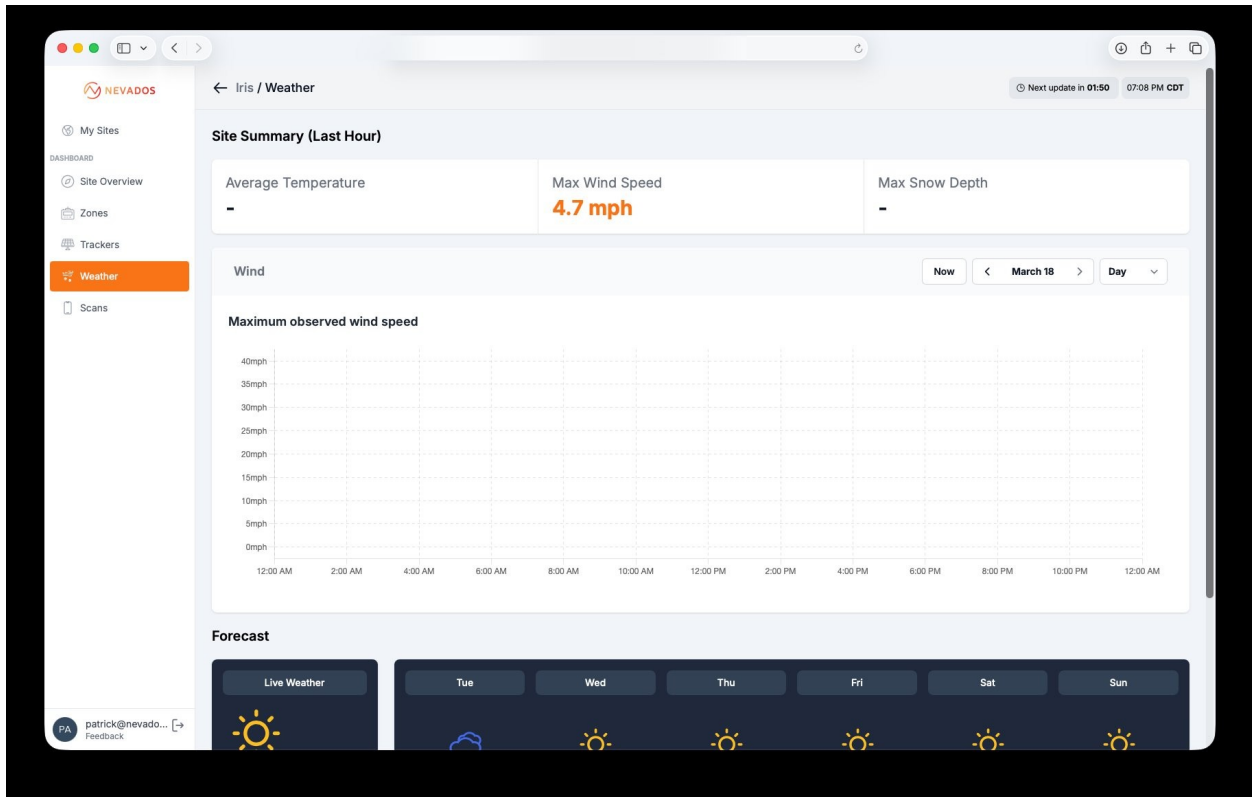
Zones view — Zone 1 (117/118 trackers), Zone 2 (84/86 trackers), Zone 3 (103/103 trackers), each with a row-by-row tracker health grid showing individual unit status.

Multi-Tenant From Day One

Because Nevados operates across multiple customer organizations, the platform was designed with multi-tenancy as a foundational constraint, not an afterthought. Each operator sees only their sites and their data, with access scoped per organization. As Nevados adds new customers and new sites, the platform scales without architectural changes.

Weather-Aware Operations

The dashboard surfaces weather data directly alongside tracker telemetry. For any site, operators can see current wind speed, a maximum observed wind speed chart for the day, and a 7-day forecast strip — enabling proactive stow decisions before conditions become a risk.



Weather dashboard for the Iris site — site summary with max wind speed of 4.7 mph, maximum observed wind speed chart, and 7-day forecast strip showing clear conditions across the week.

Where It Stands Today

The platform is actively used by field operations teams across Nevados's growing fleet of solar installations — remotely managing and troubleshooting sites without boots on the ground. Today it monitors over 1 GW of operating Nevados solar capacity across the United States.

