Monitoring Today, Protecting Tomorrow

Air Quality, Noise, & Environmental Monitoring Solutions.

Climate In Africa

About Us

Who We Are

At Climate in Africa, we are building the data infrastructure that powers climate action. With Miri Air—our solar powered, modular, sensor rich air quality stations—we deliver real time, high precision environmental data for research, forecasting, and sustainable development. Our systems are engineered for durability across diverse environments, helping decision makers move from local interventions to continent-scale resilience. By combining environmental science with smart engineering, we create tools that turn data into action.

As we move toward a climate conscious future, the planet is our most important stakeholder. Climate in Africa exists to provide reliable and sustainable environmental monitoring for the continent. Through Miri Air, we enable communities, researchers, and policymakers to make informed, life saving choices. Our work is about more than data. It is about people, ecosystems, and future generations. The need for trusted environmental intelligence has never been greater, and Climate in Africa is here to lead.

> “Through Miri Air, we enable communities, researchers, and policymakers to make informed, life saving choices. Our work is about more than data. It is about people, ecosystems, and future generations. ”

Pioneering a New Era of Climate Intelligence

Miri Air Lite

PM 2.5/PM10; CO_2;
Temperature; Relative
Humidity; Pressure; Noise

Miri Air Urban

PM 2.5/PM10; CO_2;
Temperature; Relative
Humidity; Pressure; Noise
plus CO; O_3; VOC/NO_x index

Miri Air Pro

PM 2.5/PM10; CO_2;
Temperature; Relative
Humidity; Pressure; Noise
plus SO_2; CH_4; HCHO

Partners

LASEPA

AIR QUALITY SYSTEMS EAST AFRICA AQS

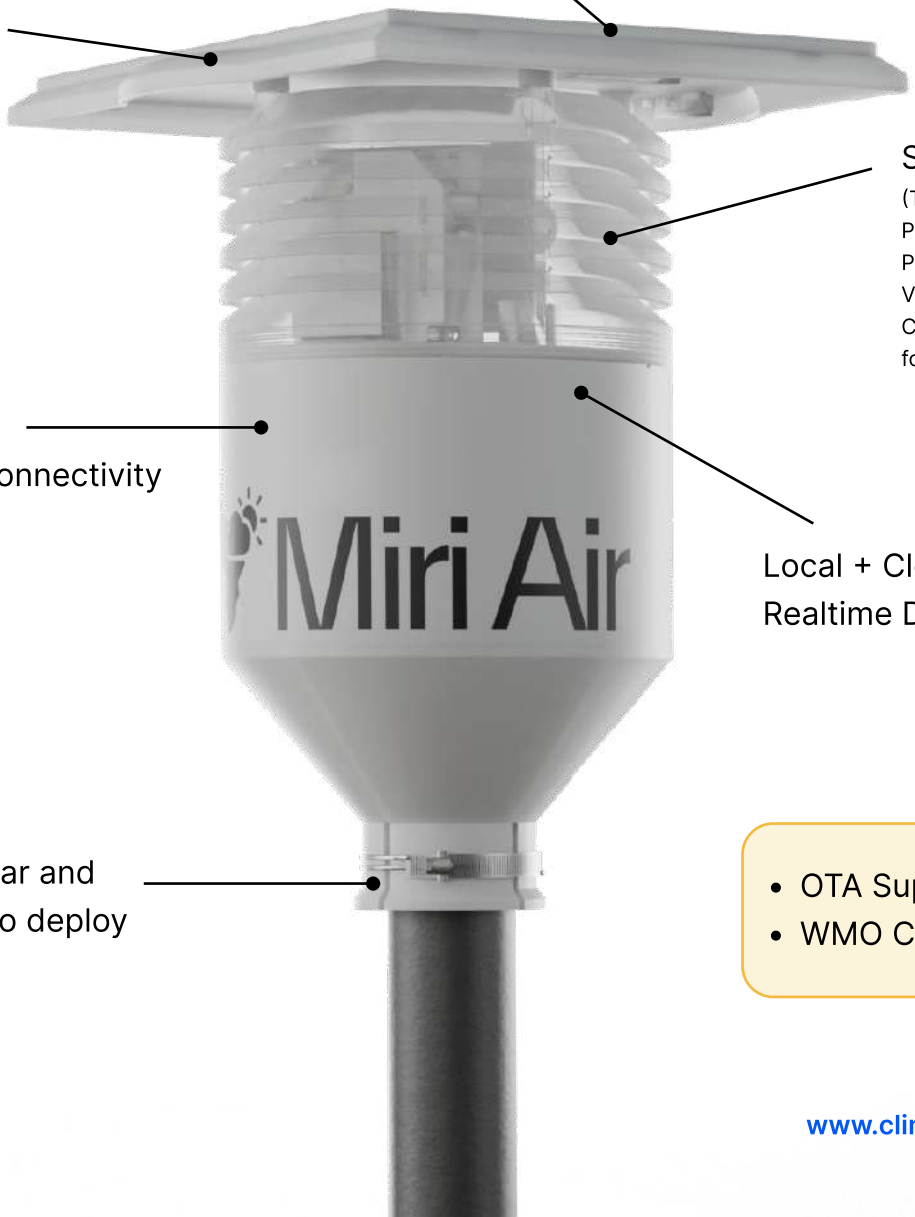
AFRI-SET

Miri Air

Features & Specs

Precision Air Monitoring at Your Fingertips

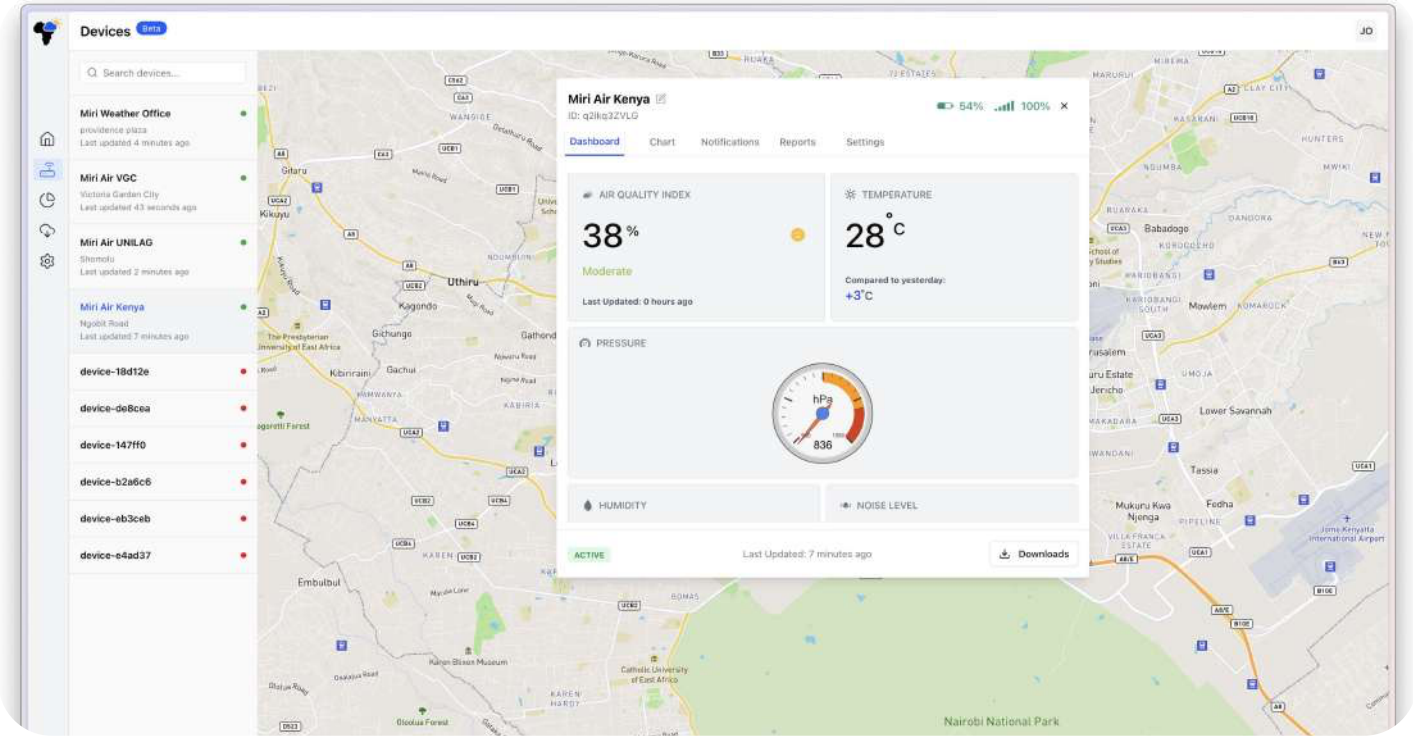
Miri Air delivers real-time data on air quality and environmental conditions including noise, temperature, humidity, gases, and particles. Powered by advanced sensors and smart connectivity, it supports research, forecasting, and climate resilience across Africa.



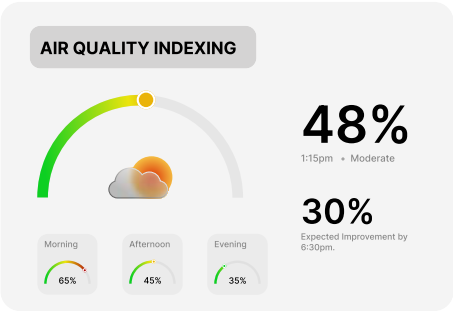
- OTA Support
- WMO Compliance

Why Miri Air?

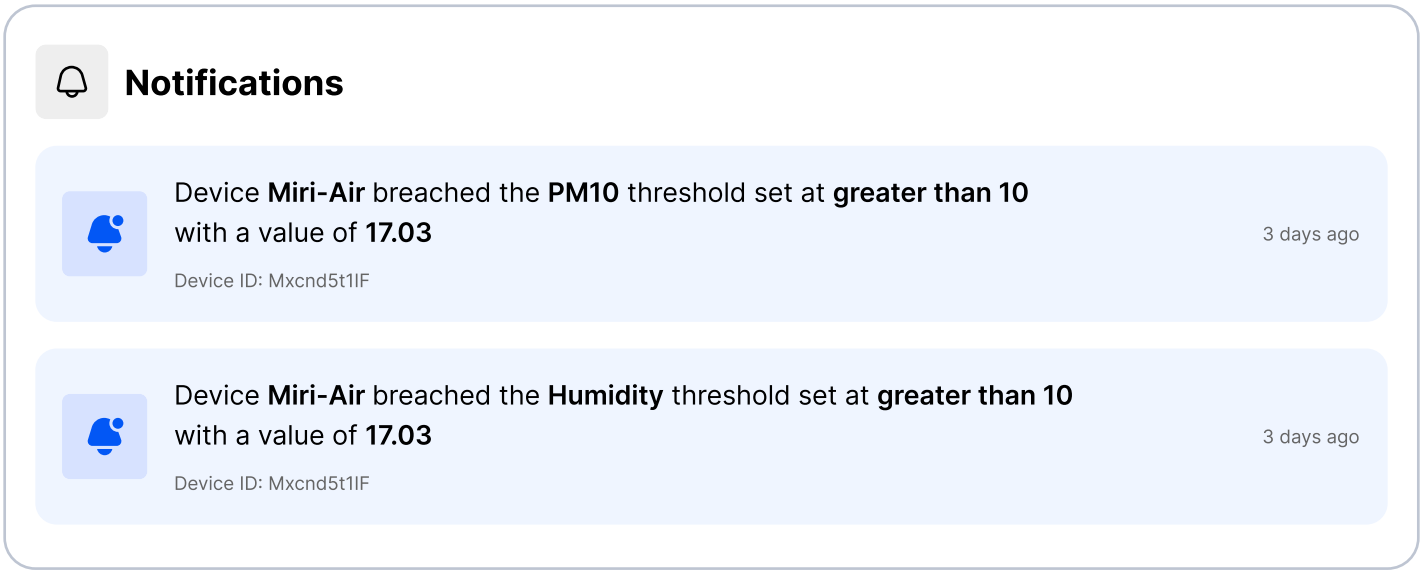
1. Instantly captures and transmits environmental data for timely insights.
2. Ensures sustainable, off-grid functionality with low energy consumption.
3. Designed in alignment with World Meteorological Organization (WMO) guidelines for credible, research-grade data.
4. Built to perform reliably in diverse African climates and terrains.
5. Feeds into advanced platforms like Climate in Africa's platform for deeper climate intelligence.
6. Enables remote access, data integration, and smart forecasting through cloud-based systems.



Applications



Disaster Management and Response:



Miri air quality monitoring station plays a critical role in real-time Disaster Management and Response by continuously monitoring key environmental parameters and issuing alerts when conditions exceed safe thresholds.

Real-Time Threshold Breach Notifications

- The system automatically detects and reports breaches in data reading.
- Alerts are triggered when values exceed pre-set limits (e.g., PM_{vv} > 10 µg/m³, Temp > 30°C).

Example from the image above:

- "PM_{10} breached with value 17.03"
- "Air Temperature breached with value 32.29°C"

Early Warning and Hazard Detection

- Enables early identification of air pollution hazards, dust storms, industrial leaks, or extreme weather conditions.
- Triggers preventive measures such as public advisories, restricted outdoor activities, or activation of emergency protocols.

- "PM_{10} breached with value 17.03"
- "Air Temperature breached with value 32.29°C"

Automated Public Health Advisory

- Specific alerts can be directed to vulnerable groups such as children, the elderly, or individuals with respiratory conditions.

Escalation Protocols

- Multiple alerts within a short period can trigger higher-level emergency responses, such as:
  - Environmental inspections.
  - Medical readiness in local clinics.
  - Temporary shutdowns of suspected pollutant sources.

Devices Specs

Dimension	29 × 23.5 × 35 cm
Weight	2 Kg (70.55 oz)
Base Material	Acrylonitrile Butadiene Styrene (ABS)
Processor	Ultra-low-power 32-bit MCU Arm Cortex STM32 MCU
Communication Method	2G/4G and BLE
Power Supply	6 - 9VDC & Solar-Powered

Battery Capacity	Li-ion 3.7V (12,000mAh)
Back-Up Time	3 days
Operating Temperature	-30°C to 85°C
Storage Temperature	-30°C to 85°C
Operating Humidity	0% to 100%
Status Indicator	RGB LED
GNSS	GPS and BDSGPS and BDS
Gas Sensors	CO, CO_2, CH_4, SO_2, NO, CH_2O, O_v, VOC
PM Sensor	$PM_{2.5}$ AND PM_{10}
ATM	Noise, Pressure and Altitude
Meta-data	Internal Temperature, Battery percentage, charging status, network connectivity, signal strength, etc.
OTA Updates	Supported
Periods	Min 5 minutes
Debugging and Support	Remote

Specification Table

	CH4	SO2	PM2.5	PM10	NO2	03	CH20	CO2	CO	VOC	NOISE	HUMIDITY	TEMP-ERATURE	ATM PRESSURE
Type	NDIR Dual Beam	Electro chemical	Laser Scattering & Airflow	Laser Scattering & Airflow	Electro chemical	Electro chemical	Electro chemical	Non-Dis persive Infrared	Electro chemical	Electro chemical		Capacitive Sensor	Linear Tempera ture	Piezo-Resistive Sensor
Unit	%LEL	ppm	μg/m³	μg/m³	ppm	ppb	ppm	ppm	ppm		dBA	%RH	°C	hPa
Measure-ment Range	0 to 100 %LEL	0 ~ 20ppm	0.0 ~ 999.9μg / m³	0.0 ~ 999.9μg / m³	0.05ppm ~ 10ppm	0 to 9999ppb	0〜5ppm	400 ppm ~ 5000 ppm	0 ~ 1000ppm	Electro chemical	30 to 120 dBA 20 to 12.5 KHz	0 to 100% RH	0 to 100 ºC	300hPa ~ 1100hPa
Resolution	1% LEL	0.1ppm	0.3μm	0.3μm	0.25ppm	≤1ppb	0.01ppm	1ppm	1ppm			0.1%RH	0.01 ºC	0.01hPa
Operating Temp Range	-20 ~ 60°C	-20 ~ 50°C	-10 ~ 50°C	-10 ~ 50°C		-20 ~ 50°C	-20 ~ 50°C	-10~+ 60 ºC	-10 ~ 40°C		-40 ~ 60°C	-40°C to +85°C	0 to 100 ºC	-40—+85 °C
Operating RH Range	0 ~ 90% RH	15 ~ 90% RH	0 ~ 90% RH	0 ~ 90% RH		15%RH-90%RH	15%RH-90%RH	0~95%	5 ~ 90% RH		25 ~ 90 % RH	0 to 100% RH	0 to 100 %RH	0 to 100 %RH
Operating Life	5 YRS	2 YRS	12 Months	12 Months		3 YRS	2 YRS	≥10 YRS	5 YRS		Device time life	Device time life	Device time life	Device time life
Accuracy	±3% F.S.	±3% F.S.	Max (± 15% & ± 10μg/m³)	Max (± 15% & ± 10μg/m³)		±10ppb or ± 10%	±1%	± (50ppm + 5% of Reading)	≤1ppm		± 0.5dB	±2%RH (Max ± 5%RH)	±0.9°C	±0.15hPa
Response Time	40s	30s	1s	1s	<250s	≤60s	≤60s	3 mins	≤30s		1.5s			

Specification Table

Upload Frequency	5 Minutes (Default) Contact Admin for more frequent reporting options.
Measurement Interval	5 Min to 24Hr
Time Keeping	Synchronize automatically and on-demand; GPS and cellular)
$PM_{2.5}$	Range: 0 to 999.9µg/m^3 Resolution: 0.3µm Accuracy: Max (± 15% & ±10µg m^3)
PM_{10}	Range: 0 to 999.9µg/m^3 Resolution: 0.3µm Accuracy: Max (± 15% & ±10µg/m^3)
O_3	Range: 0 to 9999ppb Resolution: 1ppb Accuracy: ±10ppb or ±10%
CH_20	Range: 0 to 5ppm Resolution: 0.01ppm Accuracy: ±1%
CO_2	Range: 400ppm to 5000ppm Resolution: 1ppm Accuracy: ± (50ppm + 5% of Reading)
CO	Range: 0 to 1000ppm Resolution: 1ppm Accuracy: ≤1ppm
SO_2	Range: 0 to 20ppm Resolution: 0.1ppm Accuracy: ±3% F.S.
CH_4	Range: 0 to 100 %LEL Resolution: 1% LEL Accuracy: ±3% F.S.
Noise	Range: 30 to 120 dBA (20 to 12.5KHz) Resolution: 0.01dB Accuracy: ± 0.5dB.
Relative Humidity (RH)	Range: 0 to 100% RH Resolution: 0.1% RH Accuracy: ±2%RH (Max ±5%RH)

Solar Radiation	Range: 0 to 1,750 W/m2 Resolution: 1 W/m2 Accuracy: ±5% of measurement typical
Air Temperature	Range: –40 to 110 °C Resolution: 0.1 °C Sensor Accuracy: ±0.5°C. at 25 °C
Barometric Pressure	Range: 300hPa to 1100hPa Resolution: 0.01hPa Accuracy: ±0.15hPa
Wind Speed	Range: 0 to 75 m/s Resolution: 0.1m/s Accuracy: ±3%
Precipitation	Range: 0 to 250 mm/h Resolution: 0.2 mm Accuracy: ±2%
Soil Moisture	Range: 0 to 100%RH Resolution: 0.2 mm Accuracy: ±2%
O_3	Range: 0 to 9999ppb Resolution: 1ppb Accuracy: ±10ppb or ±10%
Soil Temperature	Range: -40°C to 80°C Resolution: 0.1%RH Accuracy: ±4%RH

Communication Specifications

Internet Downloads	SSL/TLS encrypted
Cellular Communication	4G Specifications: 4G LTE-M with 2G fallback 4G Coverage: Selected Country Cellular and data hosting service provided by Miri
Mobile Communication	Bluetooth v2.0 + EDR Sensitivity: -80dBm
GPS Communication	Type: Integrated GPS, GLONASS and BEIDOU receiver Update: 3x Daily (automatic) and on-demand (manual) Accuracy: ±4 m, with good sky view

Physical Specifications

Dimensions	Width: 16.5 cm (6.5 in) Height: 31.8 cm (12.5 in)
Memory Type	Non-volatile Micro SD card
Data Storage	4096 MB (more than 1,000,000 records)
Battery Capacity	12000mAh Li-ion
Battery Life	≥72 hours offline operation (cloudy/rainy conditions) Solar Energy Charging.
Operating Temperature Range	Temperature: –20 to 100°C Humidity: 0 to 100%RH

Sensors

Precision You Can Trust — Every Time

Factory Operations

A. Sensor selection: Miri selects sensors that meet WMO (World Meteorological Organization) standards to ensure high-quality, accurate environmental data.

B. Sensor grouping: Sensors are organized by product application:

- Miri Air Lite
- Miri Air Urban
- Miri Air Pro

C. Calibration: All sensors are calibrated against reference standards to maintain accuracy and reliability before field use.

D. Validation: Miri sensors undergo field validation in real-world environments to ensure performance meets expectations.

Field Operations

- Deployment: Miri sensors field deployment
- Operation and Maintenance: Miri Air Cloud allows remote operation & maintenance for troubleshooting and debugging. There is BLE connectivity for onsite communication and troubleshooting.
- Sensor Replacement: Miri sensors are replaced once they reach end of life. Miri collects back the replacement for recycling.

Evidence of accuracy

How are Miri products calibrated?

To ensure high accuracy and reliability in measurements, Miri Weather sensors are calibrated against certified reference standards at the University of Lagos and University of Ghana. This process minimizes measurement uncertainty and ensures consistency across deployments.

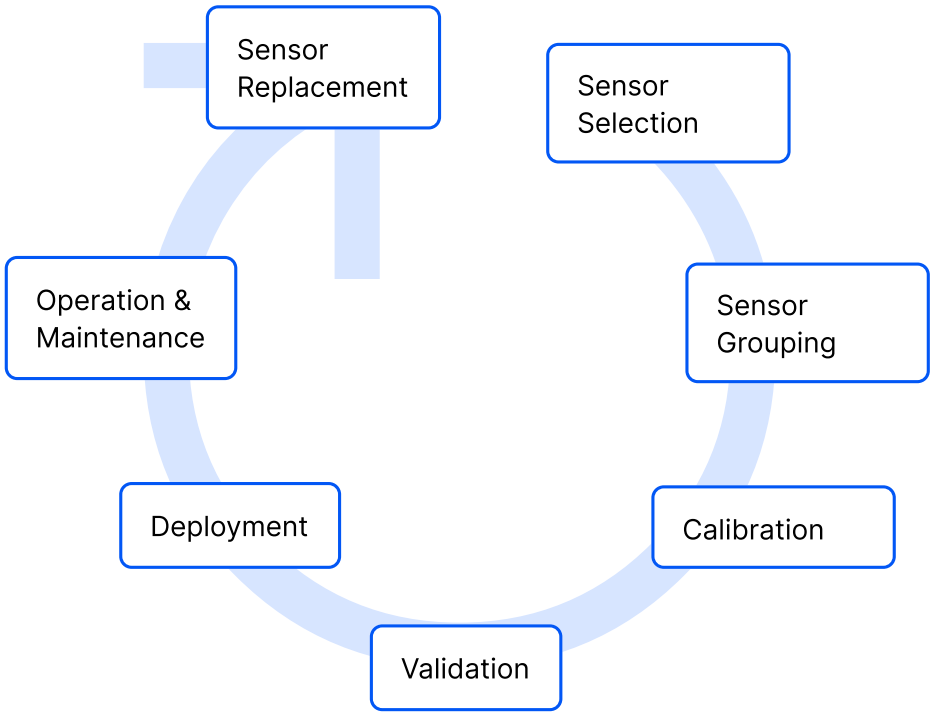
Calibration Process

Miri sensor calibration involves aligning sensor output with known reference values, enabling precise correction of deviations and improving data confidence. During operation, if telemetry shows a systematic offset, we generate updated calibration coefficients and deliver them to the device over the air through our secure OTA channel. This approach guarantees that the system meets rigorous quality requirements for environmental monitoring.

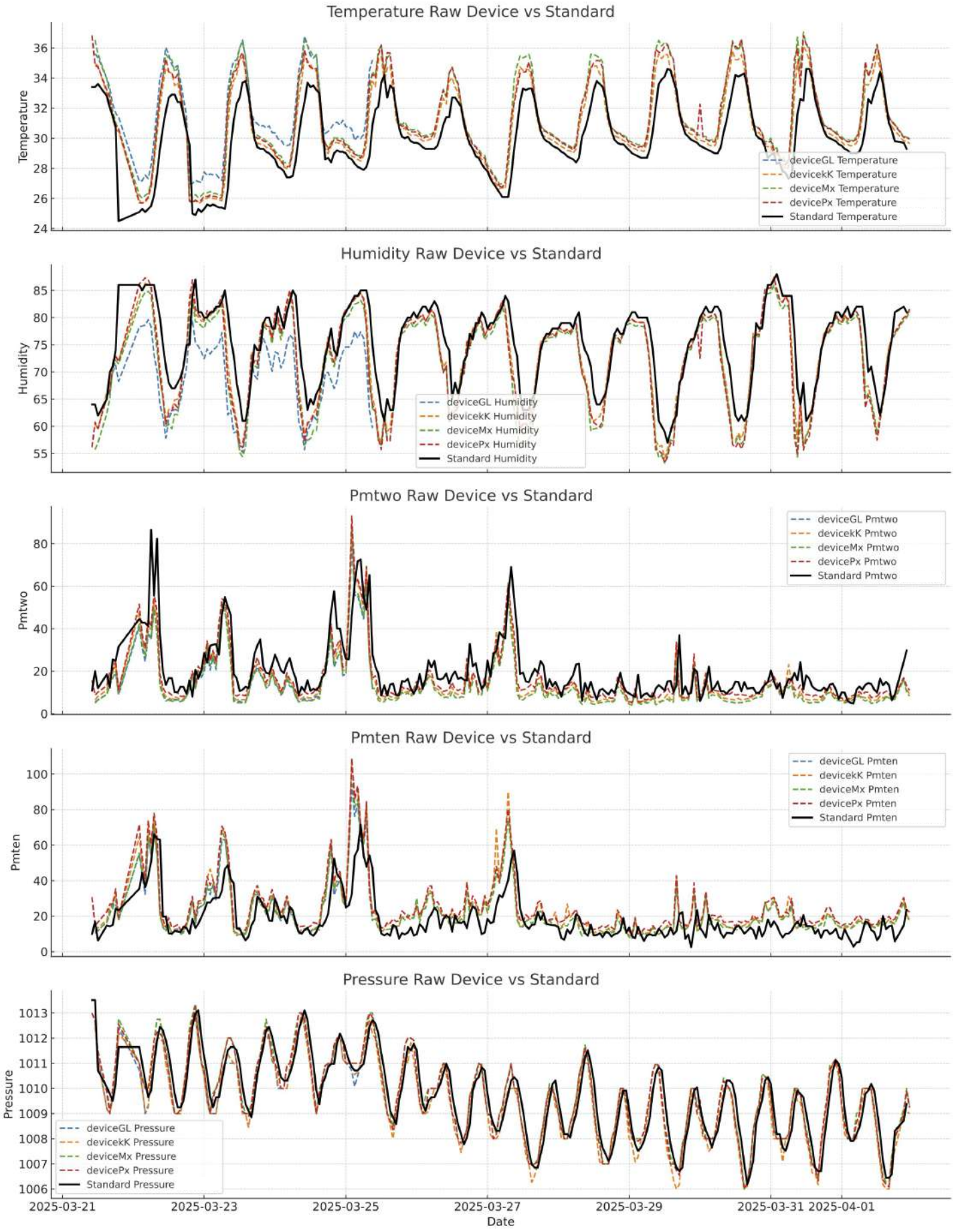
Miri sensor provides data that:

- Matches performance levels of reference instruments
- Delivers traceable, high-accuracy readings for research and operational use
- Complies with international best practices for sensor calibration

Standard operating procedure / Product life cycle



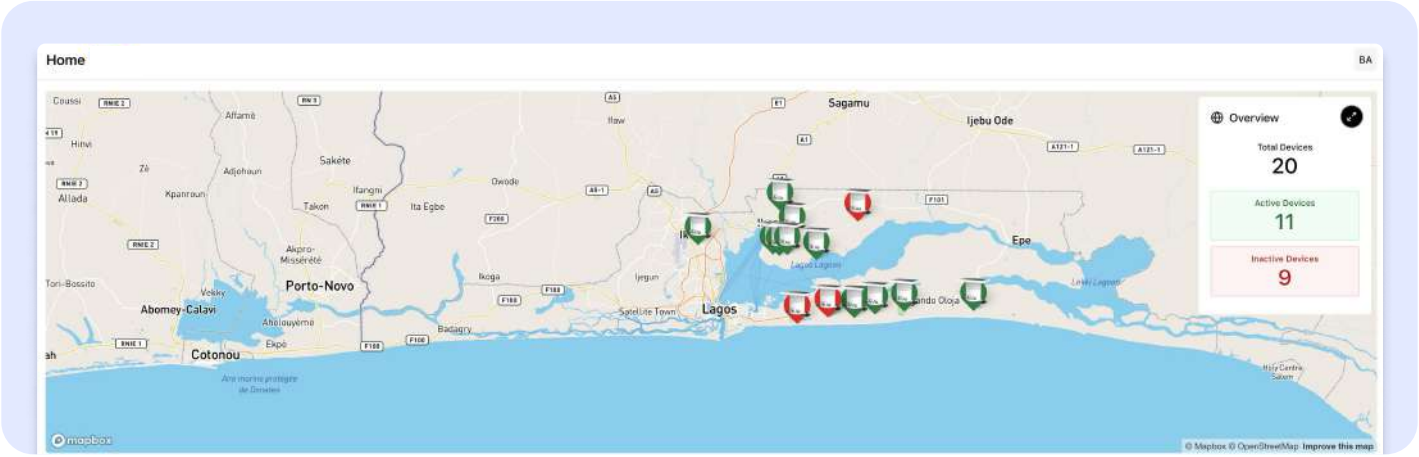
Miri Air against reference-grade stations



Platform

From ground truth to actionable intelligence.

Miri Platform turns your sensor network into decisions you can act on. Built for governments, researchers, and industry, it fuses AI, historical satellite data, and Miri's in-situ measurements to give you the clearest picture of the environment—ever.



What you get — live, local, always on

- Real-time dashboards with citywide and site-level views
- Custom alerts for air pollution, micro-weather and disaster thresholds
- Forecasts powered by AI + historical satellite models
- Report builder with exports for regulation, research, and carbon credit verification
- Role-based access for teams; organization-wide device management
- Data ownership stays with you; secure by design

Every Miri device connects instantly. Every reading. Every alert. Every insight. Right when you need it.

Governments

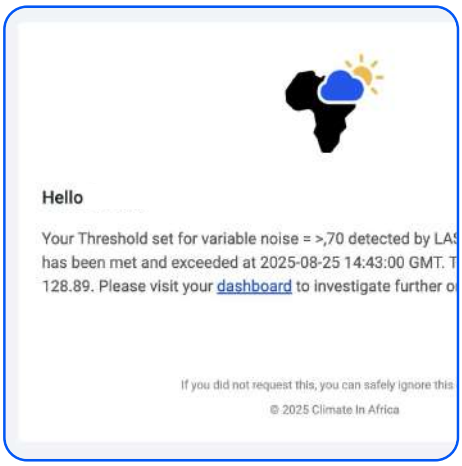
Researchers

Industries

Decision Ready Tools

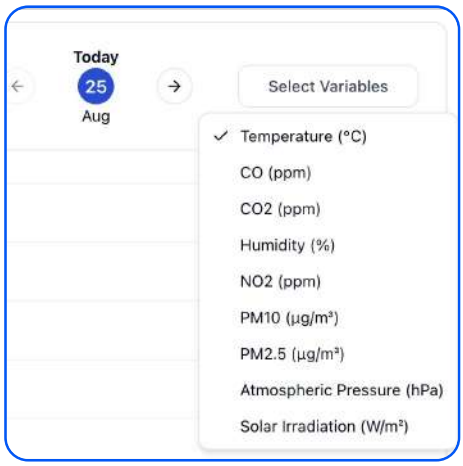
Live Map & Dashboard

Hotspots, trends, and AQI at a glance. Drill from state→city→site→minute.



Alerts

Create threshold rules for $PM_{2.5}$, PM_{10}, NO_2, SO_2, O_3, CO, VOCs. Route alerts to inspectors, health teams, or ops via email.

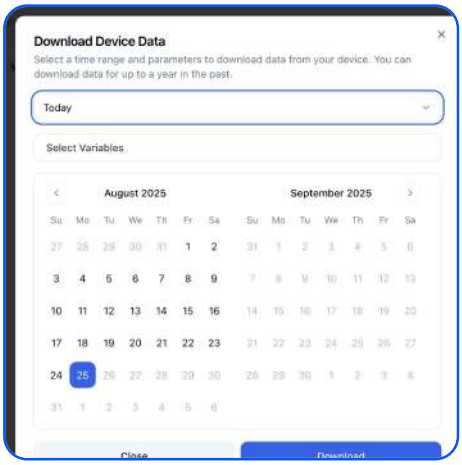


Forecasts

Hyperlocal nowcasts and short-range forecasts that blend satellite archives, reanalyses, and your ground truth for stronger early warning.

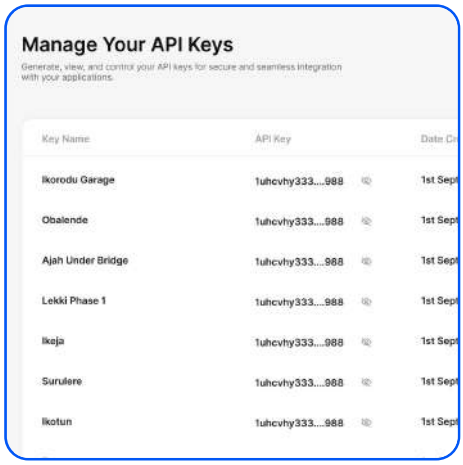
Miri-IQ Reports (MRV)

AI-powered Monitoring, Reporting, Verification from live sensors. Turn clean-tech impact into standardized credit reports.



Historical Downloads

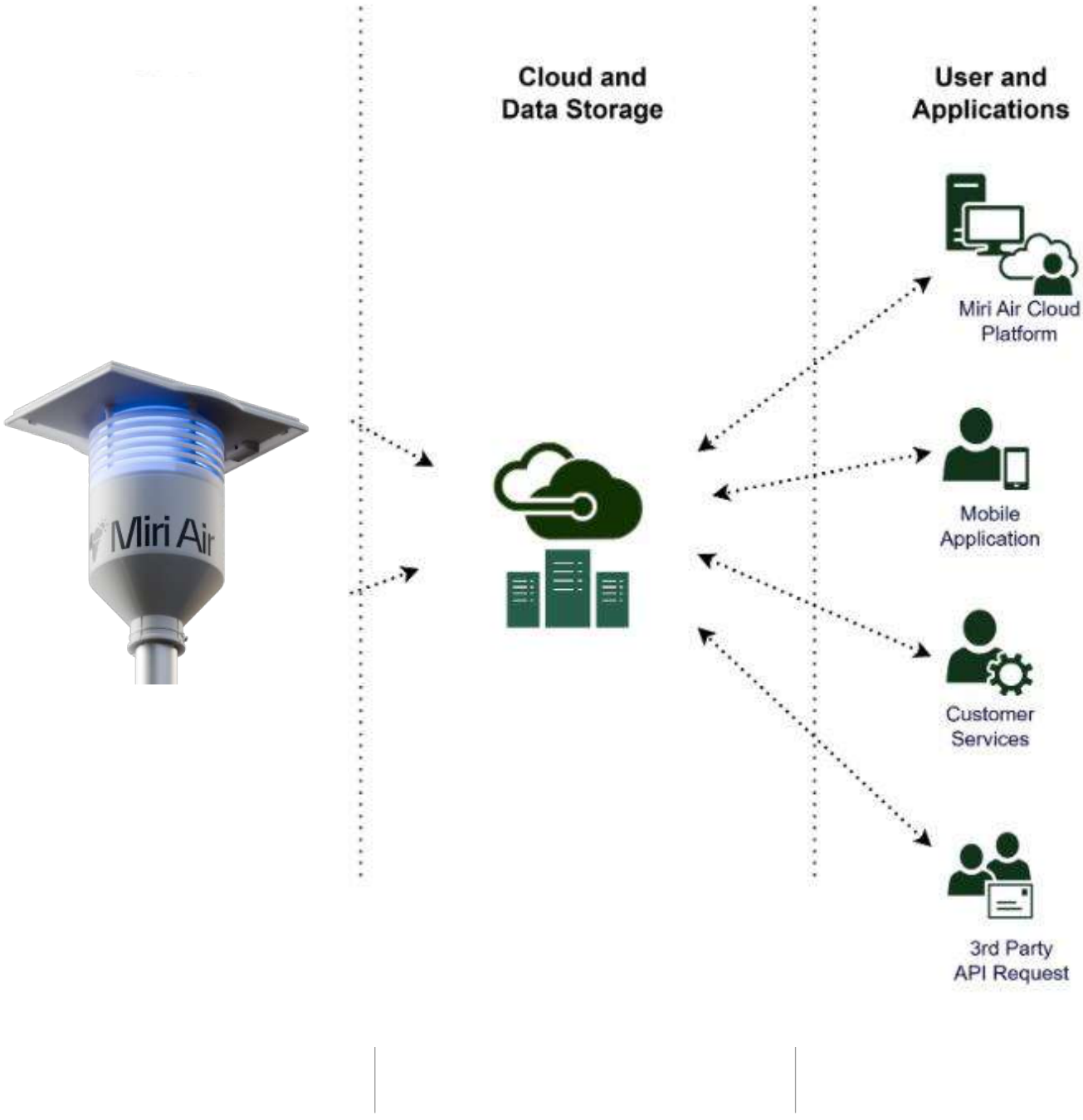
Scroll back weeks, months, or years to quantify change, seasonality, and interventions.



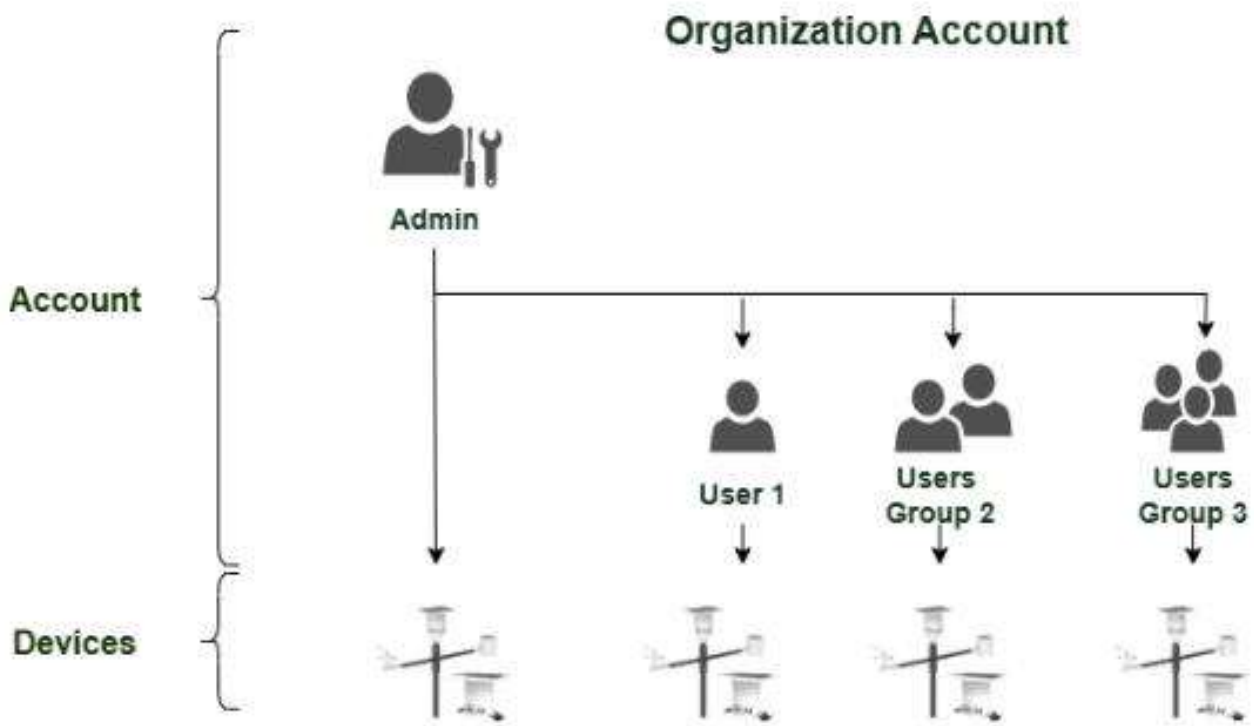
API Keys

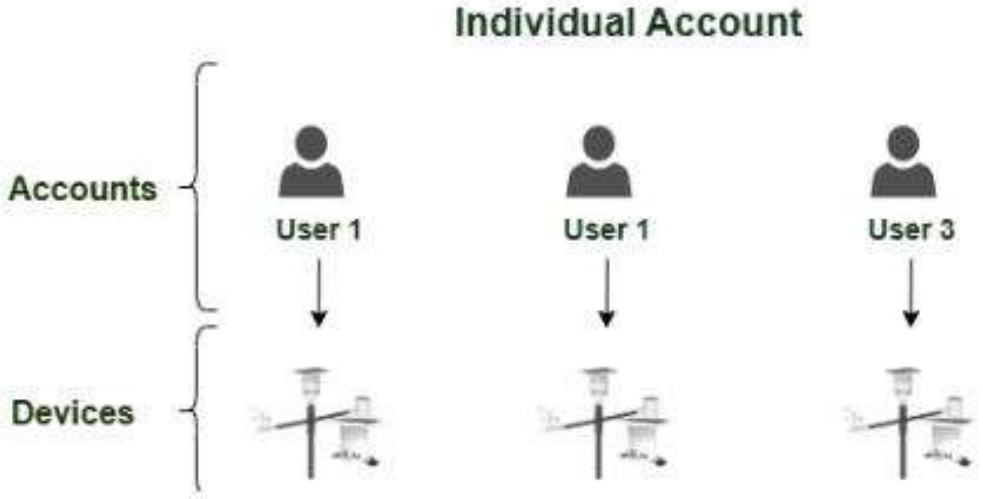
create and manage secure access to their individual device data for display in external dashboards and apps (REST API & webhooks).

Architecture



Miri Account Types





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