

# Monarch Edge Manual

An on-site edge monitoring and control platform for real-time telemetry, industrial connectivity, device modeling, and alarm-driven operations

## Real-time data & operational visibility

Provides real-time telemetry and status views across the site and devices for rapid health assessment and trend awareness.

## Industrial connectivity & configuration

Enables multi-protocol connectivity with centralized communication configuration, plus link monitoring and diagnostics for commissioning and troubleshooting.

## Device model mapping & consistency checks

Supports hierarchical modeling and point mapping, with alignment/consistency validation against upstream or cloud models to keep semantics consistent.

## Local control & alarm response loop

Offers local control entry points and alarm management to drive a closed-loop workflow from detection to on-site action.

# Platform Overview



**Monarch Edge** is a comprehensive monitoring and analytics platform for edge energy sites, designed to provide users with a clear, unified, and visual view of site operations. The platform covers key business scenarios such as generation, energy storage, energy usage, and alarms. With standardized interfaces and consistent interactions, it helps users quickly understand device status, operational trends, and abnormal conditions, improving daily O&M efficiency and management quality. The platform's main capabilities include:

- Site overview:** Centralized display of energy summary, energy flow, power/energy trends, and site/device highlights to quickly assess operational health.
- Device monitoring:** Overview and value-monitoring pages by device type (PV, storage, meters, diesel generators, etc.), supporting real-time data and status viewing.
- Alarm management:** Separate current and historical alarms with query, filter, and export for troubleshooting and traceability.
- Operation statistics:** Statistical overview, curve analysis, and run/operation logs to support data review and trend analysis.
- Unified experience:** Consistent interactions such as table filters, pagination, and update-time hints to reduce learning cost. **This manual is intended for regular users.**

# UI Structure and Function Description



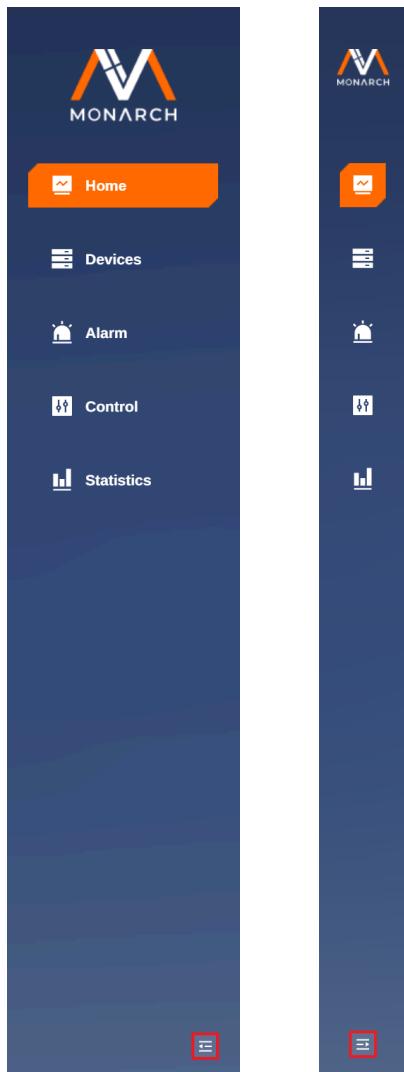
The main home page of the user interface is divided into three parts:

- Left side: sidebar menu
  - Users can click the modules they want to open. **Devices**, **Alarm**, **Control**, and **Statistic** have secondary menus. The menu corresponding to the current page is highlighted.
  - The menu items are as follows:
    - **Home** (Home page)
    - **Devices** (Devices)
      - **PV** (PV)
      - **Battery** (Battery / Energy Storage)
      - **Diesel Generator** (Diesel Generator)
      - **Meter1** (Meter 1)
      - **Meter2** (Meter 2)
    - **Alarm** (Alarms)
      - **Current Records** (Current Alarms)
      - **History Records** (Historical Alarms)
    - **Control** (Control)
      - **Control Record** (Control Records)

- **Statistics** (Statistics)
  - **Overview** (Overview)
  - **Curves** (Curves)
  - **Operation Log** (Operation Log)
  - **Running Log** (Running Log)



- Users can resize the sidebar width via the zoom icon at the bottom-right of the sidebar.



- Upper-right: top bar

On the right side of the top bar there is a bell icon



(Notice):

- A red badge indicates the number of current alarms.
- Clicking it jumps to Alarm > Current Records (Current Alarms).
- Lower-right: main content area
  - Displays data for the current page.

# Channel Concepts

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## Basic Concepts

In an IoT system, terminal devices, data acquisition gateways, and cloud platforms need to communicate through various methods for data collection, remote control, and device status monitoring. To standardize device onboarding and data management, the platform draws on proven experience in Industrial IoT (IIoT) and power automation (SCADA) and introduces concepts such as **Channel**, **Channel Point**, **Protocol**, **Four Remote types (Telemetry/Signal/Control/Adjustment)**, and **Mapping**. These concepts form the core logic for communication between devices and the cloud, and are key to understanding device onboarding, point configuration, data formats, and gateway behavior.

# Channel

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## Definition

A channel is the **logical link** used to establish communication between a device (or gateway) and the platform, and includes the complete configuration required for read/write operations. In simple terms, a channel defines:

- which protocol is used to communicate with the device;
- how to connect to the device;
- what parameters are used for read/write operations;
- how to keep the connection alive and retry on errors. A channel is the foundation of device communication and a prerequisite for all point read/write operations.

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## Configuration Items

### Basic Information:

- `id` : Unique identifier of the channel.
- `name` : Channel name.
- `description` : Channel description.
- `protocol` : Protocol used by the channel. Supported protocols include `modbus_tcp` , `modbus_rtu` , and `di_do` .
- `enabled` : Whether the channel is enabled.

**Parameters:** Dynamically change based on `protocol`. Common parameters:

- `modbus_tcp`
  - `host` : Host address (IP/domain).
  - `port` : Port (default 502). Range: 1-65535.
  - `connect_timeout_ms` : Connection timeout (positive integer, milliseconds).
  - `read_timeout_ms` : Read timeout (positive integer, milliseconds).

- **modbus\_rtu**

- `device` : Serial device path (e.g., /dev/ttyS0, COM3)
- `baud_rate` : Baud rate (typical values: 9600/19200/38400/115200)
- `data_bits` : Data bits (commonly 8)
- `stop_bits` : Stop bits (1 or 2)
- `parity` : Parity (N=None, E=Even, O=Odd)
- `connect_timeout_ms` : Connection timeout (positive integer, milliseconds)
- `read_timeout_ms` : Read timeout (positive integer, milliseconds)
- `retry_interval_ms` : Retry interval after read/write failure (positive integer, milliseconds)

#### Running Status:

- `connected` : Whether the channel is connected (Connected/Disconnected).
- `running` : Running status (Running/Stop).
- `last_update` : Last update time.
- `error_count` : Error count.
- `last_error` : Last error message.

#### Point Counts:

- `telemetry` : Telemetry point count.
- `signal` : Signal point count.
- `control` : Control point count.
- `adjustment` : Adjustment point count.

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## Role of Channels

The entire communication process depends on channels, including:

- how the platform or gateway establishes connections (serial / TCP / RTU / Ethernet);
- how data is read from devices;

- how data is written or commands are issued to devices;
- how communication status is monitored and exceptions are handled. In plain terms:  
Channel = "link + protocol + parameters" required for device communication.

# Four Remote Types

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## Definition

In industrial automation, power systems, and IoT device management, business data is typically organized and managed by the "four remote" categories. The four-remote model is a classic SCADA data model and is widely used in IIoT platforms, power automation, water, HVAC, energy management systems, and more. The classification clarifies the "nature and purpose of points," helping users understand what each point represents, what it can do, and how it is collected or issued.

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## category

### Telemetry

Telemetry refers to continuous, analog, and measurable real-time values reported by devices. It is generally represented by numeric values (integer or float).

#### Common Examples

- Temperature (C)
- Humidity (%RH)
- Voltage (V), Current (A)
- Power (kW), Power factor
- Pressure (kPa), Level (%)
- Flow, Wind speed, RPM
- Energy readings (electricity, gas, water, etc.)

#### Characteristics

- Mostly read operations;
- Values change in real time with device operation;

- Collection intervals typically need to be configured. Usage in the platform Telemetry points are used for trend analysis, reporting, energy monitoring, and operational optimization.
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## Signal

Signals are discrete status information such as device state, switch status, or enumeration values. Typically there are only two states (0/1), though some may extend to a small number of enumerations.

### Common Examples

- Running/Stopped
- Close/Open
- Started/Not started
- Alarm/Normal
- Fault/Normal
- Door Open/Closed
- Relay Energized/Released

### Characteristics

- Mostly read operations;
  - Used for monitoring device status;
  - Change events can trigger alarms. Usage in the platform Signal points are widely used in alarm management, event monitoring, and status recording.
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## Control

Control refers to action commands issued by the platform to change device operating status. This is a write operation.

### Common Examples

- Start/stop equipment

- Open/close valves
- Close/open breakers
- Start ventilation, drainage, heating equipment
- Reboot controllers
- Switch modes

## Characteristics

- Requires permission control;
  - Often requires secondary confirmation or safety checks;
  - Mostly switch-type commands (0/1). Usage in the platform Control is used for intelligent operations, remote management, and automated control strategy execution.
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## Adjustment

Adjustment is remote parameter tuning used to set device operating parameters. It is also a write operation, but unlike Control, Adjustment acts on internal "setpoints".

## Common Examples

- Temperature setpoint
- Pressure upper/lower limits
- Frequency setpoint (Hz)
- Voltage/current protection thresholds
- Tariff parameters (meters)
- PID control parameters (P/I/D)

## Characteristics

- Parameter-type writes rather than switch actions;
- Greater impact on device performance;
- Typically requires range and type validation. Usage in the platform Adjustment is often combined with automation strategies to regulate environments and improve energy efficiency.



# Channel Points

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## Definition

A channel point is a real data point of a device under a specific protocol (actual register address or signal address). A point is the smallest unit for data acquisition and command delivery. For example, in Modbus:

- Voltage may be at address 40001
  - Current may be at address 40002
  - Device start/stop may be at 00001 (coil) These registers or flags are channel points.
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## Point Classification

The platform classifies points according to the "four remote" standard in industrial automation:

Type	Name	Description
Telemetry	Telemetry	Continuous/analog values (e.g., temperature, voltage)
Signal	Signal	Discrete/switch values (e.g., on/off, alarm)
Control	Control	Control commands issued by the platform (e.g., start/stop)
Adjustment	Adjustment	Parameter setpoints issued by the platform (e.g., frequency or voltage setpoint)

The point type determines whether it is read-only (Telemetry/Signal) or write-type (Control/Adjustment).

Note: For `di_do` channels, point types are only Signal and Control because the values are only 0 and 1.

# Field Description

Each channel point typically includes:

- `point_id` : Unique point ID (positive integer).
- `signal_name` : Business signal name.
- `value` : Current value of the point.
- `scale/offset` : Scaling and offset for converting raw values to business values.
- `unit` : Unit of the point.
- `reverse` : Whether the value should be inverted (commonly for switch points).

**Note:** For Signal and Control points, the `scale`, `offset`, and `unit` fields are not required.

# Channel Point Mapping

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## Definition

Because different device vendors use different register addresses and protocol structures, the platform maps "device actual points" to a unified data model. Channel mapping is used to:

- Raw points → unified format
  - Protocol addresses → platform standard addresses
  - Multi-register merge, scaling, unit conversion, and more The platform converts device-level register data into a unified structure through mapping rules, providing standard input for historical data, alarms, and formula calculations.
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## Field Description

Mappings differ by protocol:

`modbus_rtu/modbus_tcp`:

- `point_id` : Unique point ID (positive integer)
- `slave_id` : Slave ID in Modbus and similar protocols
- `data_type` : Data type: int16, uint16, int32, uint32, float32, int64, uint64, float64, bool.
- `byte_order` : Byte order such as AB, BA, ABCD, CDAB, etc.
- `function_code` : Register function code for different functions
  - `01` : Read Coils, for read/write 1-bit outputs.
  - `02` : Read Discrete Inputs, for read-only 1-bit inputs.
  - `03` : Read Holding Registers, for read/write 16-bit register data (setpoints/parameters).
  - `04` : Read Input Registers, for read-only 16-bit register data (measurements).
  - `05` : Write Single Coil, for writing one 1-bit output.
  - `06` : Write Single Holding Register, for writing one 16-bit register value.

- `15` : Write Multiple Coils, for writing multiple 1-bit outputs in batch.
- `16` : Write Multiple Holding Registers, for writing multiple 16-bit register values in batch.
- `register_address` : Register address where data is stored, usually 1-65535.
- `bit_position` : Bit position of the real value, used for switch points, range 1-15.

#### `di_do:`

- `point_id` : Unique point ID (positive integer)
- `gpio_number` : The global GPIO line number in Linux, allowing users to reference an IO line by a single number; not the same as the physical pin/chip pin.

**These items determine how the platform correctly parses raw device data into usable business data.**

# Device Instance Concepts

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## Basic Concepts

In microgrid EMS, to standardize device onboarding and point management, the platform introduces the basic concepts of products, instances, instance points, and instance routing (mapping): a product defines the standard capabilities and point model for a device type; an instance is a specific on-site device object for a product; instance points represent the device's configuration and runtime data and are classified as **property / measurement / action** by use; instance mapping (routing) binds instance points to on-site channel points (and to T/S/C/A types) to ensure accurate data reporting and control/adjustment issuance.

# Product

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## Definition

A product is a standardized model for a device/system type in the platform, used to abstract the capabilities and data interfaces that this type should have in EMS. A product does not represent a specific on-site device, but rather the common structure and standard interface of the same device type. It defines what the device looks like in the platform and what capabilities it has:

- What points it includes (property points, measurement points, action points)
- What each point represents (e.g., SOC, power, alarms, start/stop, power setpoints, etc.) A product is not a specific on-site device, but a "generic definition for similar devices." The platform provides the following products:
  - **battery\_cell** (cell)
    - Definition: The smallest electrochemical unit of a battery system.
    - Role: Provides the most basic voltage/temperature data, the foundation for BMS monitoring and safety evaluation.
  - **battery\_module** (battery module)
    - Definition: A structural and electrical unit composed of multiple cells.
    - Role: Aggregates cell-level data, commonly used for module voltage, temperature distribution, balancing/protection management and display.
  - **battery\_cluster** (battery cluster/battery bank)
    - Definition: A higher-level aggregation composed of multiple battery modules (often corresponding to the scope of one cluster BMS).
    - Role: Provides cluster-level SOC/SOH, voltage/current, alarms, enabling EMS strategy and safety coordination.
  - **battery\_stack** (battery stack/string)

- Definition: A system-level series/parallel unit composed of multiple battery clusters (often one battery stack in engineering practice).
  - Role: Provides system-level DC key metrics (total voltage/total current/total power) and stack-level alarms for coordination with PCS/DC conversion.
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- **battery\_pack** (battery pack/battery system pack)

- Definition: A more asset/system-oriented abstraction for the battery side in EMS (often used to summarize the overall capability of a BESS battery system).
  - Role: Used for capacity, ratings, runtime statistics, alarm aggregation, reporting, and asset management; often serves as the top-level battery object for BESS.
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- **dc\_dc\_converter** (DC/DC converter)

- Definition: DC-to-DC power conversion equipment (boost/buck/isolation, etc.).
  - Role: Matches different DC bus voltage levels and supports energy regulation and protection coordination; commonly used in battery-side/DC bus power control loops.
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- **pcs** (power conversion system)

- Definition: Core power conversion equipment in energy storage systems (DC-AC).
  - Role: Executes charge/discharge power control, grid-connected/off-grid operation, reactive support, and power quality control; key target for EMS strategies and execution.
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- **diesel\_generator** (diesel generator)

- Definition: Controllable backup/emergency/peak-shaving power source.
  - Role: Provides stable power in off-grid or weak-grid scenarios; supports start/stop control, power regulation, operating status, and fault monitoring.
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- **motor** (motor)

- Definition: Motor-type load/device (as a drive device or key process device abstraction).
  - Role: Used to monitor operating status, power/current, etc.; some scenarios support start/stop or speed control (depending on site control and points).
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- **load** (load)
  - Definition: Aggregated load or controllable load object on the consumption side (e.g., campus load, building load, production line load).
  - Role: Core input for EMS load forecasting, energy balance, peak shaving, and demand response; supports strategy linkage when extended as controllable load.

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- **pv\_string** (PV string)
  - Definition: A generation unit formed by series-connected modules.
  - Role: String-level voltage/current/power monitoring, helpful for locating shading, mismatch, and degradation issues (depending on access capability).

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- **pv\_optimizer** (optimizer)
  - Definition: Module/string-level power optimization and monitoring device.
  - Role: Improves generation efficiency and supports finer-grained monitoring and fault localization; typically associated with string/module data.

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- **pv\_combiner** (combiner box)
  - Definition: Device that combines multiple strings in parallel to a DC bus.
  - Role: Aggregates string circuits and provides branch current/switch/surge protection monitoring; key node between strings and inverters.

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- **pv\_inverter** (PV inverter)
  - Definition: Device that converts PV DC power to AC for grid connection/supply.
  - Role: Output power control, grid operation management, reactive/power-quality support, and status/alarm monitoring; main controlled/monitored object on the PV side in EMS.

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- **gateway** (gateway)
  - Definition: Acquisition and protocol conversion node connecting site devices to the cloud/platform.
  - Role: Hosts channels and protocols, performs data acquisition upload and command delivery; responsible for point mapping, caching, edge computing/forwarding

(depending on implementation).

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- **station** (site/station)
    - Definition: Top-level organizational object for a microgrid/site (one project or one station).
    - Role: Hosts the site device tree, topology, and aggregate metrics (site power/energy/alarms), and serves as the unified entry for permissions, reporting, dispatch strategies, and O&M.
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## Role

- Unify point collections and semantics for the same device type (standardization)
- Support bulk instantiation (multiple device instances for one product)
- Facilitate system integration, operations, and configuration reuse

# Instance

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## Definition

An instance is the concrete object of a product model in a site project (Asset/Device Instance), corresponding to an actual device, system unit, or logical object (e.g., PCS\_01, BESS\_01, PCC\_METER\_01). An instance has a unique `instance_id` and binds to a `product_name`, inheriting the product's point system. An instance is not only a display "device item" but also the smallest business unit for status calculation, control issuance, and alarm positioning on the platform.

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## Field Description

- `instance_id` : Instance ID, a unique identifier.
  - `instance_name` : Instance name.
  - `product_name` : Name of the product the instance belongs to.
  - `properties` : Instance properties.
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## Role

- Apply the "template (product)" to the "site object (instance)"
- Instances carry the product's configuration properties and runtime points (measurement/action)
- Map to site channels (four-remote) to enable data acquisition and control issuance

# Instance Points

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## Definition

Instance points are the "data interfaces" of an instance in the platform, representing all information that can be configured, observed, and controlled. Instance points fall into three categories:

- **property points** Describe "static/semi-static configuration parameters" such as rated power, capacity, communication address, control strategy parameters, alarm thresholds, etc. Role:
  - Serve as the source of instance configuration data
  - Used for strategy calculation, limit checks, display, and operations configuration
  - Usually not high-frequency changes (can be set manually or by strategy)
- **measurement points** Represent "observable status/telemetry/signal" data such as voltage, current, power, SOC, switch status, alarm status, etc. Role:
  - Real-time monitoring and visualization
  - Input data for alarms, linkage, reporting, and optimization dispatch
- **action points** Represent points that can be issued for control/adjustment, such as start/stop, close/open, active/reactive setpoints, charge/discharge power setpoints, mode switching, etc. Role:
  - EMS control-loop output (strategy/manual operation → device)
  - Support both Control and Adjustment commands

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## Field Description

- `point_id` : Unique identifier within the point category.
- `name` : Point name.
- `value` : Current point value.
- `unit` : Point unit.

- **description** : Point description.
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## Role

- Unify semantics and data governance: Map different protocols and vendor raw points into consistent semantic points for upper-layer understanding and reuse.
- Base granularity for monitoring and alarms: Trends, threshold alarms, event linkage, and reporting all rely on points.
- Input/output for the control loop: Strategies read **measurement** points to determine state and write to **action** points to issue targets.

# Instance Point Routing

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## Definition

Instance point mapping binds platform "instance points" to on-site "channel points/addresses." It answers the following key questions for each instance point: **Which channel and point on-site does it map to? Which of the four remote types does it belong to?**

- For **measurement** points, the channel point type can only be **Telemetry** or **Signal**.
  - For **action** points, the channel point type can only be **Control** or **Adjustment**.
  - **property** points are intrinsic attributes and have no routing info.
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## Field Description

- `point_id` : ID of the instance point.
  - `name` : Name of the point.
  - `channel_id` : ID of the channel used by the route.
  - `channel_type` : Four-remote type of the channel point.
  - `channel_point_id` : Channel point ID used by the route.
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## Role

- Data uplink (acquisition): Channel data is routed to the corresponding measurement points.
- Command downlink (control): Values written to action points are routed to the corresponding channel points and sent to devices.

- Decouple business and protocol: Business logic focuses on point semantics; communication focuses on addresses; mapping connects them to allow protocol/gateway/point-table changes.

# Rule Concepts

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## Basic Concepts

In EMS systems, devices such as batteries, PCS, PV, and diesel generators must cooperate under constantly changing operating conditions. The system must make judgments based on real-time measurements and promptly issue control commands or adjust operating parameters (such as power setpoints, start/stop, mode switching) to achieve safe, stable, and economical operation. To standardize strategy configuration and visual management, the platform introduces concepts such as **Rule** and **Rule Flow**.

# Rule

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## Definition

A rule is the basic unit used in EMS to express an "operating strategy." It describes the control logic the system should take under specific conditions. It takes real-time data (measurements/status/computed results) as inputs, determines the current scenario through conditions, and outputs corresponding control actions or parameter adjustments.

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## Role

- Strategy solidification and automated execution: Configure human experience/dispatch strategies into logic that the system can execute automatically for unattended operation.
- Operational objectives: Automatically choose appropriate control measures under different conditions to meet safety, stability, economy, and efficiency goals.
- Unified management and reuse: Rules can be centrally managed (enable/disable, priority, etc.) and reused across different sites or projects.

# Rule Chain

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## Definition

A rule flow is the visual execution flow inside a rule. It uses "nodes + links" to describe the full execution path of a rule from start to finish. It breaks a rule into steps (such as start, condition, action, end) and uses branching to express different paths under different conditions.

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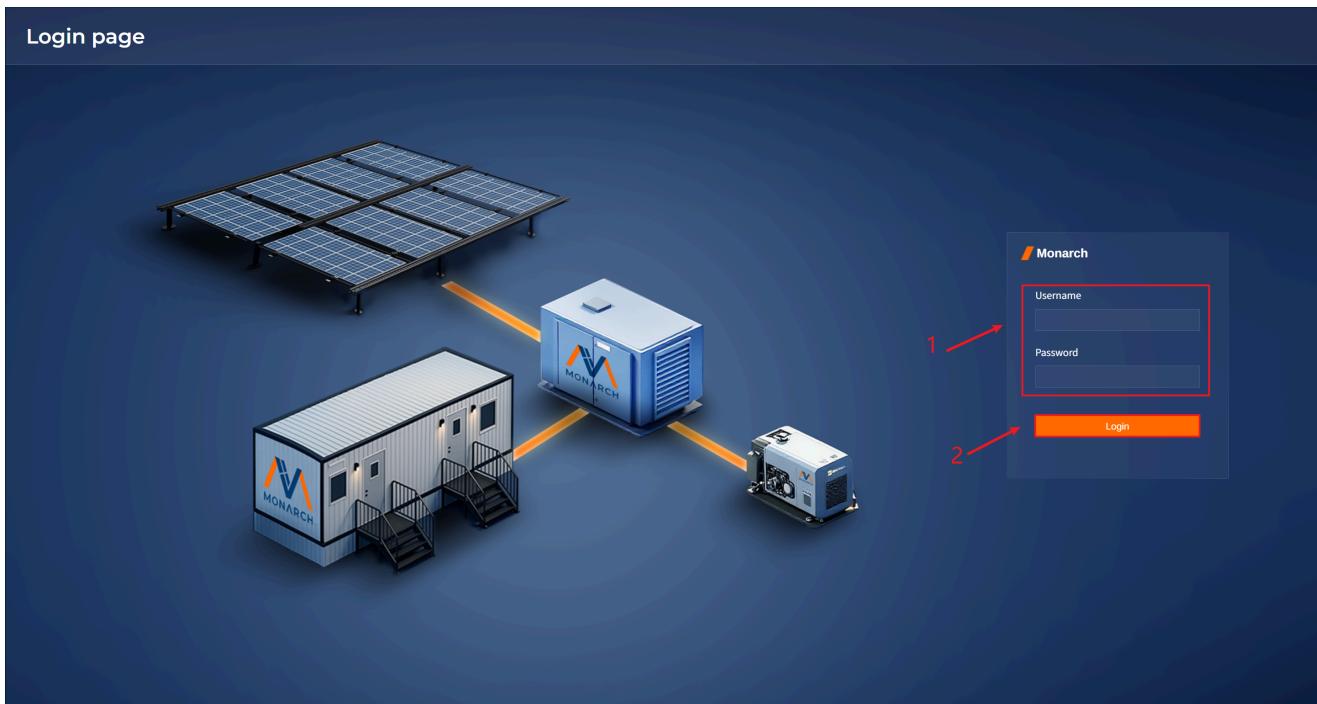
## Role

- Clearly express complex logic: Present multi-condition, multi-branch, multi-action strategies as flowcharts, reducing understanding and configuration costs.
- Traceable and diagnosable: During runtime, the actual execution path and key node data can be located to quickly identify why a decision was made.
- Easy to maintain and iterate: Quickly adjust steps and branches with a graphical structure, with versioning and import/export reuse.

# Glossary

- **Viewer:** Read-only user, mainly views data and records
- **Channel:** Logical channel for acquisition/communication (e.g., a Modbus channel)
- **Point:** Specific measurement/signal point (e.g., a voltage/current line)
- **Telemetry:** Continuous values (usually a number + unit)
- **Signal:** Status values (usually 0/1 or status codes)
- **Control:** Action command issued by the platform to change device operating state
- **Adjustment:** Parameter setpoints issued by the platform for remote tuning
- **SoC:** State of Charge, battery percentage
- **SoH:** State of Health
- **Update Time:** The most recent refresh/push time of page data

# Login Page



1. Open the system and enter the login page.

2. Enter:

- **Username** : The username of the user account.
- **Password** : The password of the user account.

3. Click **Log in** to sign in.

4. After a successful login, the system opens the **Home** page by default.

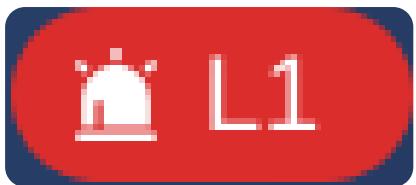
# Home Page

The Home page mainly displays key data for the site and specific devices, and refreshes in real time with device status.



- The first section contains the site's energy overview cards, mainly showing statistics for **PV Energy**, **Diesel Energy**, **Energy Used**, and **Saving Billing**.
- The second section is the microgrid topology diagram. It shows the direction of energy flow (device charge/discharge) and the key data of each device:
  - **PV:** P (current power)
  - **Load:** P (current power)
  - **ESS:** P (current power), SOC (battery state of charge)
  - **Diesel:** P (current power), Oil (current diesel fuel percentage)
- The third section is the power statistics curves for **PV** and **ESS**.
- The fourth section is the energy bar chart for **Diesel**, **ESS**, and **PV**.
- The fifth section is current site information statistics, covering current power for **PV** and **Diesel**, and charge/discharge status for **ESS**.
- The sixth section is site device information statistics, showing **P (current power)** and **U (current voltage)** for **PV**, **ESS**, and **Diesel Generator**. Users can switch devices using the left/right buttons.
- The seventh section is site alarm information, showing current alarms from left to right:

- Alarm device
- Alarm level (sorted by urgency: L1>L2>L3)



- Alarm information

# Devices Page



**Devices** includes multiple device types, such as **PV**, **Battery**, **Diesel Generator**, **Meter1**, and **Meter2**. Each device page typically includes:

- **Overview:** Card-based display of key device indicators.
- **Value Monitoring:** Real-time point tables showing Telemetry and Signal data from channels bound to real devices.

# PV

## Overview



- The top shows four PV indicator cards:
  - **PV Power:** Current PV power
  - **PV Voltage:** Current PV voltage
  - **PV Current:** Current PV current
  - **Today's Energy:** PV energy generated today
- The middle area shows a PV background diagram. Hovering over a string shows data for that PV string:
  - **P:** Power of the selected PV string
  - **V:** Voltage of the selected PV string
  - **I:** Current of the selected PV string

## Value Monitoring

Name	Value	Unit
grid_line_voltage_vab	-	V
grid_line_voltage_vbc	-	V
grid_line_voltage_vca	-	V
grid_phase_voltage_va	-	V
grid_phase_voltage_vb	-	V
grid_phase_voltage_vc	-	V
grid_phase_angle_ab	-	Degree
grid_phase_angle_bc	-	Degree
grid_frequency	-	Hz
grid_current_ia	-	A
grid_current_ib	-	A
grid_current_ic	-	A
grid_earth_current	-	A
grid_unbalance_current	-	A
grid_a_active_power	-	kW
grid_b_active_power	-	kW
grid_c_active_power	-	kW
grid_total_active_power	-	kW

Name	Status
Battery	Normal
Diesel Generator	Normal
Meter1	Normal
Meter2	Normal

- The top shows **Update Time**, which is the latest data acquisition time.
- Below are two tables:
  - The left table is the channel **Telemetry** table, including `Name`, `Value`, and `Unit`.
  - The right table is the channel **Signal** table, including `Name` and `Status`.

# Battery

## Overview

The screenshot shows the 'Overview' page of the Norton creek solar energy center. On the left, a sidebar menu includes 'Home', 'Devices' (selected), 'PV', 'Battery' (highlighted in orange), 'Diesel Generator', 'Meter1', 'Meter2', 'Alarm', 'Control', 'Statistics', and 'Setting'. The main area features a large image of a blue MONARCH battery. At the top right, it says 'Online' with a green dot, 'wind 67°F~79°F', and user 'admin'. Below the battery image, a grid of nine cards displays real-time data: Charge Discharge Status (0), SoC (0 %), SoH (0 %), Voltage (0 v), Current (0 A), Power (0 kW), Max Cell Voltage (0 v), Min Cell Voltage (0 v), Avg Cell Voltage (0 v), Cell Voltage Difference (0 v), and Avg Cell Temperature (0 °C). The last two rows of cards are grouped together with a red border.

This page displays key battery indicators in a card list:

- **Charge/Discharge Status:** Battery charge/discharge status
- **SoC:** Battery state of charge
- **SoH:** Battery health
- **Voltage:** Current battery voltage
- **Current:** Current battery current
- **Power:** Current battery power
- **Max/Min/Avg Cell Voltage:** Max/min/average cell voltage
- **Cell Voltage Difference:** Maximum cell voltage difference
- **Avg Cell Temperature:** Average cell temperature

## Value Monitoring

The screenshot shows the 'Value Monitoring' tab selected. The left panel lists various battery-related parameters such as voltage, current, power, and state of charge. The right panel lists fault codes for the battery system.

Name	Value	Unit
BamsVoltage	-	V
BamsCurrent	-	
BamsPower	-	Kw
BamsSoc	-	%
BamsSoh	-	%
BamsPermitChgPower	-	Kw
BamsPermitDsgPower	-	Kw
BamsPermitChgCurrent	-	A
BamsPermitDsgCurrent	-	A
BamsBcuSocDiff	-	%
BamsBcuMinSoc	-	%
BamsBcuMinSocNo	-	
BamsBcuMaxSoc	-	%
BamsBcuMaxSocNo	-	
BamsMaxCellVol	-	V
BamsMaxCellVbcuBmuNo	-	
BamsMaxCellVno	-	
BamsMinCellVol	-	V

Name	Status
BaFaultCode0_Bit0	
BaFaultCode0_Bit1	
BaFaultCode0_Bit2	
BaFaultCode0_Bit3	
BaFaultCode0_Bit4	
BaFaultCode0_Bit5	
BaFaultCode0_Bit6	
BaFaultCode0_Bit7	
BaFaultCode1_Bit0	
BaFaultCode1_Bit1	
BaFaultCode1_Bit2	
BaFaultCode1_Bit3	
BaFaultCode1_Bit4	
BaFaultCode1_Bit5	
BaFaultCode1_Bit6	
BaFaultCode1_Bit7	
BaFaultCode2_Bit0	
BaFaultCode2_Bit1	

This page includes tabs:

- **Battery:** Battery
- **PCS:** Power conversion system

Each tab uses the "Update Time + left/right tables" layout, the same as the PV Value Monitoring page.

## Battery Management

The screenshot shows the 'Battery Management' tab selected. It features two main monitoring sections: 'Voltage' and 'Temperature'. Each section displays 18 individual battery cells, with each cell showing its number and current voltage value.

Voltage					
#1	3.6 v	#2	3.6 v	#3	3.6 v
#4	3.6 v	#5	3.6 v	#6	3.6 v
#7	3.6 v	#8	3.6 v	#9	3.6 v
#10	3.6 v	#11	3.6 v	#12	3.6 v
#13	3.6 v	#14	3.6 v	#15	3.6 v
#16	3.6 v	#17	3.6 v	#18	3.6 v

Temperature					
#1	96 °F	#2	96 °F	#3	96 °F
#4	96 °F	#5	96 °F	#6	96 °F
#7	96 °F	#8	96 °F	#9	96 °F
#10	96 °F	#11	96 °F	#12	96 °F
#13	96 °F	#14	96 °F	#15	96 °F
#16	96 °F	#17	96 °F	#18	96 °F

This page mainly monitors **Voltage** and **Temperature** for all **Battery Cells**.

- Left: Shows voltage for all cells

- The module header shows **maximum cell voltage** and **minimum cell voltage**.
  - The module body lists **#1~#N** (Battery Cell) voltages as cards.
  - Right: Shows temperature for all cells
    - The module header shows **maximum cell temperature** and **minimum cell temperature**.
    - The module body lists **#1~#N** (Battery Cell) temperatures as cards.
-

# Diesel Generator

## Overview



Top indicator cards:

- Power
- Oil (current fuel level)
- Voltage
- Coolant Temp (coolant temperature)

## Value Monitoring

The screenshot shows the Norton creek solar energy center dashboard. At the top, there's a header with the system name, an online status indicator, weather information (wind at 67°F~79°F), and a test mode button. Below the header is a navigation bar with tabs for Overview and Value Monitoring, with Value Monitoring selected. On the left, a sidebar lists various monitoring categories: Home, Devices (selected), PV, Battery, Diesel Generator (highlighted in orange), Meter1, Meter2, Alarm, Control, and Statistics. The main content area displays two tables. The first table, titled 'Devices', lists various parameters with their names, current values, and units. The second table, titled 'Status', lists items with their names and statuses. An 'Update Time:' label is located at the top right of the status table.

Name	Value	Unit
grid_line_voltage_vab	-	V
grid_line_voltage_vbc	-	V
grid_line_voltage_vca	-	V
grid_phase_voltage_va	-	V
grid_phase_voltage_vb	-	V
grid_phase_voltage_vc	-	V
grid_phase_angle_ab	-	Degree
grid_phase_angle_bc	-	Degree
grid_phase_angle_ca	-	Degree
grid_frequency	-	Hz
grid_current_ia	-	A
grid_current_ib	-	A
grid_current_ic	-	A
grid_earth_current	-	A
grid_unbalance_current	-	A
grid_a_active_power	-	kW
grid_b_active_power	-	kW
grid_c_active_power	-	kW
grid_total_active_power	-	kW

Name	Status
------	--------

Layout is the same as the PV Value Monitoring page.

# Meter1

Meter1 directly displays **Value Monitoring** information, with the same layout as the **PV Value Monitoring** page.

The screenshot shows the Monarch software interface for the Norton creek solar energy center. The left sidebar contains navigation links: Home, Devices (selected), PV, Battery, Diesel Generator, Meter1 (selected), Meter2, Alarm, Control, and Statistics. The main header displays "Norton creek solar energy center" and "Online". The top right corner shows weather information: wind 67°F~79°F and a test button. A table on the right lists monitoring parameters with their values and units. The table has two sections: one for voltage and another for current/power. The "Update Time:" column is shown at the top right of the table area.

Name	Value	Unit
grid_line_voltage_vab	-	V
grid_line_voltage_vbc	-	V
grid_line_voltage_vca	-	V
grid_phase_voltage_va	-	V
grid_phase_voltage_vb	-	V
grid_phase_voltage_vc	-	V
grid_phase_angle_ab	-	Degree
grid_phase_angle_bc	-	Degree
grid_phase_angle_ca	-	Degree
grid_frequency	-	Hz
grid_current_ia	-	A
grid_current_ib	-	A
grid_current_ic	-	A
grid_earth_current	-	A
grid_unbalance_current	-	A
grid_a_active_power	-	kW
grid_b_active_power	-	kW
grid_c_active_power	-	kW
grid_total_active_power	-	kW
grid_reverse_power	-	kW

Name	Status
------	--------

# Meter2

Meter2 directly displays **Value Monitoring** information, with the same layout as the **PV Value Monitoring** page.

The screenshot shows the MONARCH software interface with the following details:

- Header:** Norton creek solar energy center (Online), wind 67°F~79°F, test, Update Time: [dropdown]
- Left Sidebar:** Home, Devices (selected), PV, Battery, Diesel Generator, Meter1, Meter2 (selected), Alarm, Control, Statistics.
- Middle Content:** Two tables showing monitoring data.
  - Table 1 (left):** Name, Value, Unit. Data rows:
    - grid\_line\_voltage\_vab - V
    - grid\_line\_voltage\_vbc - V
    - grid\_line\_voltage\_vca - V
    - grid\_phase\_voltage\_va - V
    - grid\_phase\_voltage\_vb - V
    - grid\_phase\_voltage\_vc - V
    - grid\_phase\_angle\_ab - Degree
    - grid\_phase\_angle\_bc - Degree
    - grid\_phase\_angle\_ca - Degree
    - grid\_frequency - Hz
    - grid\_current\_ia - A
    - grid\_current\_ib - A
    - grid\_current\_ic - A
    - grid\_earth\_current - A
    - grid\_unbalance\_current - A
    - grid\_a\_active\_power - kW
    - grid\_b\_active\_power - kW
    - grid\_c\_active\_power - kW
    - grid\_total\_active\_power - kW
    - grid\_reverse\_power - kW
  - Table 2 (right):** Name, Status. Data rows:
    - [empty]
    - [empty]

# Alarm Page

**Alarm** is the alarm record page. Users can view current and historical alarm information from this module.

# Current Records

---

## Table Fields

- Name: Rule/Alarm name
  - Channel ID: Channel ID
  - Level: Alarm level icon
  - Start Time: Trigger time
- 

## Filter

Users can select the alarm level from the dropdown in the upper-right corner to filter current alarm records.

# History Records

---

## Table Fields

- Name: Rule/Alarm name
  - Channel ID: Channel ID
  - Level: Alarm level icon
  - Start Time: Alarm trigger time
  - End Time: Alarm handling end time
- 

## Filter

Users can filter by the following conditions:

- Warning Level: L1/L2/L3
- Start Time: Start time
- End Time: End time

Click **Search** to search by the selected conditions. Click **Reload** to reset all filters and search again.

---

## Export

Click **Export** to export the historical alarms to an Excel file.

# Control Page

Viewers typically only have permission to view control records and cannot issue control commands.

# Control Record

Table fields:

- Name: Rule/Alarm name
- Channel ID: Channel ID
- Level: Alarm level icon
- Start Time: Trigger time Filter: Users can select the alarm level from the dropdown in the upper-right corner to filter the current alarm records.

# Statistics Page

Statistics has 4 tabs at the top:

- Overview
- Curves
- Operation Log
- Running Log [Screenshot placeholder: Statistics tabs (Overview/Curves/Operation Log/Running Log)]

# Overview

This page is chart-based and typically includes:

- Energy consumption (energy overview cards)
- Energy Distribution (donut chart)
- Power Trend (line chart)
- Energy Chart (bar chart) Common actions
- Switch time range: click the time buttons on the right
  - 6 Hour / 1 Day / 1 Week / 1 Month
- View chart tips
  - Hover over a chart to see values at a specific time point (tooltip) [Screenshot placeholder: Statistics Overview (time buttons + chart area)]

# Curves

The Curves page is similar to Overview and also chart-based, with the same interactions:

- Select filter conditions
- Switch time range (6h/1d/1w/1m)
- View chart tips and trend changes [Screenshot placeholder: Statistics Curves (filters + time buttons + charts)]

# Operation Log

Page content Table columns typically include:

- User
- Role
- Action
- Device
- Result
- Time
- IP Address Pagination is supported. [Screenshot placeholder: Operation Log (table + pagination)]

# Running Log

This page shows system operation information as a "log text stream": The top usually has an **Export** button.

# Channel Configuration

The screenshot shows the MONARCH software interface with the title "Norton creek solar energy center" and a status indicator "Online". The top navigation bar includes "admin", "wind 67°F~79°F", and a search bar. On the left, a sidebar menu lists "Home", "Devices", "Alarm", "Control", "Statistics", "Setting" (which is highlighted with an orange bar), and "Configuration" (which is highlighted with a red box). The main content area is titled "channel configuration" and displays a table of channels. The table columns are ID, Name, Description, Protocol, Enabled, Connected, Error Count, and Operation. There are three entries:

ID	Name	Description	Protocol	Enabled	Connected	Error Count	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Disconnected	0	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Disconnected	0	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input type="checkbox"/>	Disconnected	0	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>

At the bottom right, there are pagination controls: "Total 3", "20/page", and page numbers 1 and 2.

This chapter includes: channel management, channel point configuration, and channel point mapping configuration.

# Channel Management

## Query Channels

The screenshot shows the 'Norton creek solar energy center' interface with the title 'Online'. On the left, there's a sidebar with 'MONARCH' logo, navigation links (Home, Devices, Alarm, Control, Statistics), and a 'Setting' section with 'System Setting', 'User Management', and 'Configuration' (which is currently selected). The main content area displays a table of channels:

ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	On	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	On	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
3	GENSET#1	柴油发电机组 #1	modbus_rtu	On	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
4	cs_01	-	modbus_tcp	On	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
5	ECU1170_GPIO	ECU-1170本机DI/DO	di_do	On	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>

At the bottom right, there are pagination controls: 'Total 5', '20/page', and page numbers '1 >'. Red arrows point to the search bar area (labeled 1), the 'Search' button (labeled 2), and the 'Reload' button (labeled 3).

1. You can filter channels by:

- **protocol:** Channel protocol type (e.g., modbus\_tcp, modbus\_rtu, di\_do).
- **enabled:** Enabled status (Enabled, Disabled).
- **connected:** Connection status (Connected, Disconnected).

2. After selecting filters, click **Search** to apply.

3. Click **Reload** to reset filters.

## View Channel Details and Edit

Norton creek solar energy center Online

Protocol: select protocol | Enabled: select enabled status | Connected: select connected status | C Reload | Q Search | + New Channel

ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input checked="" type="button"/> Detail <input type="button"/> Points <input type="button"/> Delete
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button"/> Detail <input type="button"/> Points <input type="button"/> Delete
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<input type="button"/> Detail <input type="button"/> Points <input type="button"/> Delete
4	cs_01	-	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button"/> Detail <input type="button"/> Points <input type="button"/> Delete
5	ECU1170_GPIO	ECU-1170本机DI/DO	di_do	<input checked="" type="checkbox"/>	Connected	<input type="button"/> Detail <input type="button"/> Points <input type="button"/> Delete

Total 5 20/page 1 >

1. Click **Detail** in the **Operation** column for the target channel to open the details dialog.

Norton creek solar energy center Online

Host: 192.168.1.10 Port: 502

Connect Timeout (ms): 3000 Read Timeout (ms): 3000

Runtime Status

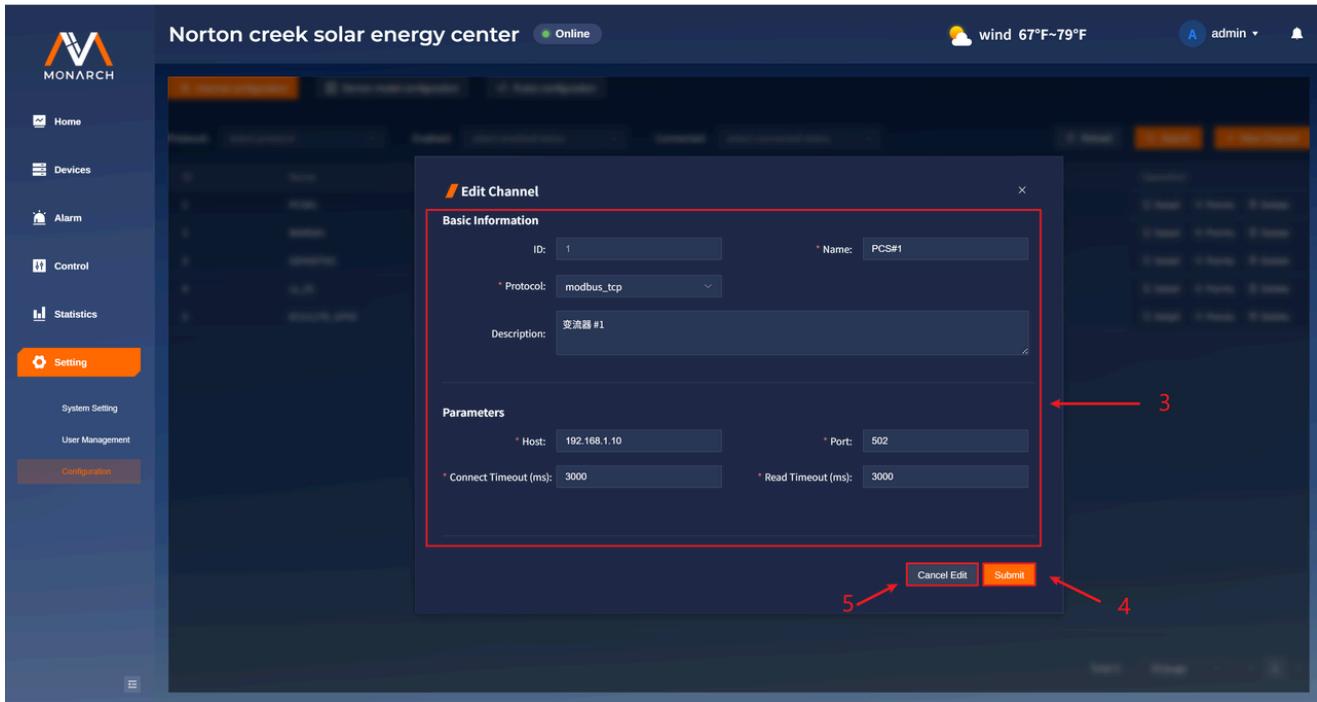
Connected: <span style="color: green;">Connected</span>	Running: <span style="color: green;">Running</span>
Last Update: 2025-12-29 15:49:51	Error Count:
Last Error: No errors	

Point Counts

Telemetry: 764	Signal: 109
Control: 17	Adjustment: 553

Cancel Edit

2. Click **Edit** to enter edit mode.

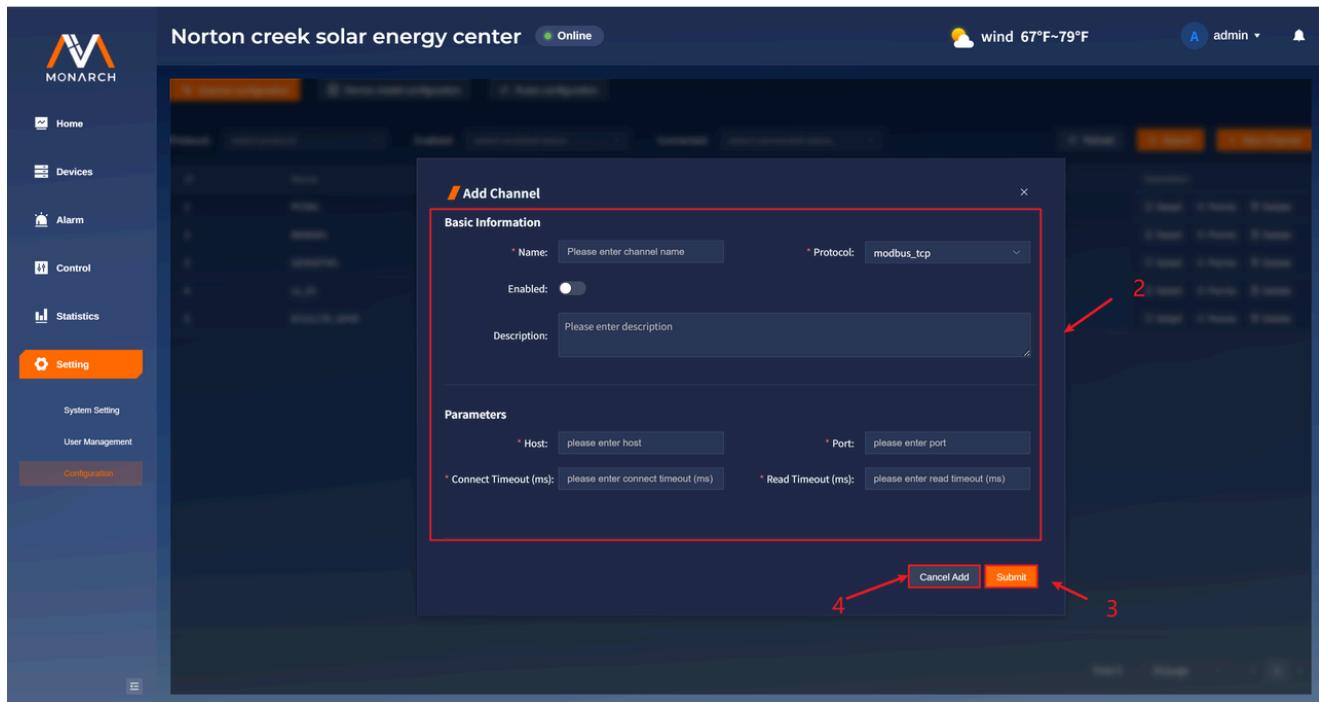


3. Enter the values to update. Refer to the field definitions in the basic concepts section.
4. Click **Submit** to save.
5. Click **Cancel Edit** to cancel.

## Add a New Channel

ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
4	cs_01	-	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
5	ECU1170_GPIO	ECU-1170本机DI/DO	di/do	<input checked="" type="checkbox"/>	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>

2. Click **New Channel** to open the add dialog.



3. Select the protocol via the **Protocol** dropdown and fill in the required parameters. Refer to the field descriptions in the details page.
4. Click **Submit** to add the channel.
5. Click **Cancel Add** to cancel.

## Toggle Channel Enable Status

ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
4	cs_01	-	modbus_tcp	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
5	ECU1170_GPIO	ECU-1170本机DI/DO	di_d0	<input checked="" type="checkbox"/>	Connected	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>

1. Use the slider in the **Enabled** column to toggle. Slide left to **Enabled**, right to **Disabled**.

# Delete an Existing Channel

ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	On	Connected	[Detail, Points, Delete]
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	On	Connected	[Detail, Points, Delete]
3	GENSET#1	柴油发电机组 #1	modbus_rtu	On	Connected	[Detail, Points, Delete]
4	cs_01	-	modbus_tcp	On	Connected	[Detail, Points, Delete]
5	ECU1170_GPIO	ECU-1170本机DI/DO	di/do	On	Connected	[Detail, Points, Delete]

1. Click **Delete** in the **Operation** column of the channel row.

Delete Confirmation  
Are you sure you want to delete channel GENSET#1?

Cancel Confirm

2  
3

2. Click **Confirm** to delete.

3. Click **Cancel** to cancel.

# Channel Point Configuration

The screenshot displays the MONARCH software interface for managing channel points in the 'Norton creek solar energy center'. The main window shows a list of five configured channels. The 'Operation' column for each channel includes links for 'Detail', 'Points', and 'Delete'. A red box highlights the 'Points' link for the first channel. The bottom half of the screen is a detailed view of the 'Points Table' for the selected channel. The table has tabs for 'telemetry', 'signal', 'control', and 'adjustment'. A red box highlights the 'telemetry' tab. The table lists various points with columns for Point ID, Point Name, Value, Scale, Offset, Unit, Reverse, and Operation. The 'Operation' column contains checkboxes for 'Publish'. A red box highlights one of these checkboxes. Other numbered arrows point to the 'View Mode' toggle (3), 'Batch Publish' button (4), 'Export' button (6), 'Cancel' button (7), and 'Edit' button (8).

1. Click **Points** in the **Operation** column of the desired channel row to open the points dialog.
2. The point type tabs include **telemetry**, **signal**, **control**, and **adjustment**, corresponding to the four-remote point categories. Click a tab to view points of that type.
3. View mode toggle: **Points** and **Mappings**. Click the corresponding button to switch views.
4. Click **Batch Publish** to issue values in bulk.
5. Click **Publish** in the **Operation** column to issue a value for a single point.

6. Click **Export** to export the table data of the current tab to .csv.
7. Click **Edit** to enter point edit mode.
8. Click **Cancel** to close the dialog.
9. The point filter box supports fuzzy search by name or precise search via dropdown selection.

Point ID	Point Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position
1	System_Fault_status	1	3	32	uint16	AB	0
2	System_ON/OFF_status	1	3	33	uint16	AB	0
3	Electrical_room_fan_stop	1	3	36	uint16	AB	0
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0
5	Rack_DC_switch_1_closed	1	3	43	uint16	AB	0
6	AC_module_01_online_status	1	3	90	uint16	AB	0
7	AC_module_01_ON/OFF_status	1	3	91	uint16	AB	0
8	AC_module_01_alarm_status	1	3	92	uint16	AB	0
9	AC_module_01_fault_status	1	3	93	uint16	AB	0

When switching the view toggle to **mappings**, the page is interpreted as follows:

10. Click the tab to switch point type and view point mappings.
11. Click **Export** to export the table data of the current point type to .csv.
12. Click **Edit** to enter point mapping edit mode.
13. Click **Cancel** to close the dialog.

## Issue Point Values

There are two ways to issue point values: **bulk publish** and **single publish**.

### Single Publish

Norton creek solar energy center Online

MONARCH

Home Devices Alarm Control Statistics Setting System Setting User Management Configuration

Points Table

View Mode: Points Mappings

telemetry signal control adjustment

Point Name: Search Point Name

Batch Publish Export

Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Operation
1	System_Fault_status	34	1	0		false	Publish
2	System_ON/OFF_status	0	1	0		false	Publish
3	Electrical_room_fan_stop	108	1	0		false	Publish
4	Ac_bus_switch_closed	513	1	0		false	Publish
5	Rack_DC_switch_1_closed	0	1	0		false	Publish
6	AC_module_01_online_status	3	1	0		false	Publish
7	AC_module_01_ON/OFF_status	0	1	0		false	Publish
8	AC_module_01_alarm_status	3	1	0		false	Publish
9	AC_module_01_fault_status	0	1	0		false	Publish

Cancel Edit

1

Norton creek solar energy center Online

MONARCH

Home Devices Alarm Control Statistics Setting System Setting User Management Configuration

Points Table

View Mode: Points Mappings

telemetry signal control adjustment

Value Publish

Value: 12

Cancel Submit

2

3

4

The screenshot shows the 'Points Table' dialog in the MONARCH interface. The table lists various system points with their details like Scale, Offset, Unit, Reverse, and Operation. A red box highlights the 'Value' column for the first row, and a red arrow points to the input field containing the value '12'. The 'telemetry' tab is selected.

Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Operation
1	System_Fault_status	12	1	0		false	publish
2	System_ON/OFF_status	1	1	0		false	publish
3	Electrical_room_fan_stop	108	1	0		false	publish
4	Ac_bus_switch_closed	513	1	0		false	publish
5	Rack_DC_switch_1_closed	0	1	0		false	publish
6	AC_module_01_online_status	3	1	0		false	publish
7	AC_module_01_ON/OFF_status	0	1	0		false	publish
8	AC_module_01_alarm_status	3	1	0		false	publish
9	AC_module_01_fault_status	0	1	0		false	publish

1. Click **Publish** for the target point row to open the single publish dialog.
2. Enter the value to publish in the Value input (for **telemetry** and **adjustment**, the value is numeric; for **signal** and **control**, the value is 0 or 1).
3. Click **Submit** to publish the value.
4. Click **Cancel** to cancel.
5. On success, the value changes.

## Bulk Publish

The screenshot shows the 'Points Table' dialog in the MONARCH interface, similar to the previous one but with different point names. A red arrow points to the 'Batch Publish' button at the top right of the dialog.

Point ID	Point Name	Value	Reverse	Operation
1	Grid_Interconnection_mode	0	false	publish
2	Advanced_control_commands_1_bit0	0	false	publish
3	Advanced_control_commands_1_bit1	0	false	publish
4	Energy_dispatching_mode	0	false	publish
5	Active_power_control_mode	0	false	publish
6	Reactive_power_control_mode	0	false	publish
7	DC_control_mode	1	false	publish
8	Control_mode	0	false	publish
9	Bms_protocol	0	false	publish

Norton creek solar energy center Online

View Mode: **Points** Mappings

Cancel Publish

Submit Publish

Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Publish Value
1	System_Fault_status	34	1	0		false	
2	System_ON/OFF_status	0	1	0		false	
3	Electrical_room_fan_stop	108	1	0		false	
4	Ac_bus_switch_closed	513	1	0		false	
5	Rack_DC_switch_1_closed	0	1	0		false	
6	AC_module_01_online_status	3	1	0		false	
7	AC_module_01_ON/OFF_status	0	1	0		false	
8	AC_module_01_alarm_status	3	1	0		false	

Norton creek solar energy center Online

View Mode: **Points** Mappings

Batch Publish Export

Point ID	Point Name	Value	Scale	Offset	Unit	Reverse	Operation
1	System_Fault_status	10	1	0		false	↗ Publish
2	System_ON/OFF_status	1	1	0		false	↗ Publish
3	Electrical_room_fan_stop	108	1	0		false	↗ Publish
4	Ac_bus_switch_closed	513	1	0		false	↗ Publish
5	Rack_DC_switch_1_closed	0	1	0		false	↗ Publish
6	AC_module_01_online_status	3	1	0		false	↗ Publish
7	AC_module_01_ON/OFF_status	0	1	0		false	↗ Publish
8	AC_module_01_alarm_status	3	1	0		false	↗ Publish
9	AC_module_01_fault_status	0	1	0		false	↗ Publish

1. Click **Batch Publish** on the target point type tab (only affects the current point type).
2. Enter values in the **Publish** column (for **telemetry** and **adjustment**, numeric; for **signal** and **control**, 0 or 1).
3. Click **Submit Publish** to submit the bulk publish.
4. Click **Cancel Publish** to cancel.
5. On success, the values change.

# Batch Edit Points

The screenshot shows the Monarch platform interface for 'Norton creek solar energy center'. On the left is a sidebar with icons for Home, Devices, Alarm, Control, Statistics, and Setting (which is selected). The main area displays a 'Points Table' with 9 rows of data. The columns are Point ID, Point Name, Value, Scale, Offset, Unit, Reverse, and Operation. The 'Operation' column contains 'Publish' with a small edit icon. At the bottom right of the table are 'Cancel' and 'Edit' buttons. Above the table, there are four checkboxes for filtering: 'modified' (checked), 'added', 'deleted', and 'invalid'. A red arrow points from the 'Edit' button to the 'modified' checkbox.

1. Click **Edit** in the points view to enter batch edit mode for all points.

The screenshot shows the 'Points Table' in edit mode. The 'Edit' button at the bottom right is now active. The status filter checkboxes are shown: 'modified' (checked), 'added', 'deleted', and 'invalid'. The table rows are now highlighted in blue, indicating they have been modified. The 'Reverse' column for all rows now has a checked checkbox icon, and the 'Operation' column now shows 'edit' with a small edit icon.

2. During editing, you can filter by status (only within the current point-type table):

- **modified:** Filters points that were actually modified. Modified rows are shown in blue, and modified data is highlighted in blue.

2	System_ON/OFF_status	-	3	0	false		
---	----------------------	---	---	---	-------	--	--

- **added:** Filters points added via the add operation. Added rows and data are shown in green.

1782	test	-	1	0	false		
------	------	---	---	---	-------	--	--

- **deleted:** Filters points deleted via the delete operation. Deleted rows and data are shown in red.

1	System_Fault_status	-	1	0	false		
---	---------------------	---	---	---	-------	--	--

- **invalid:** Filters points with issues after add/modify. Problematic rows show orange markers with a dark red background.

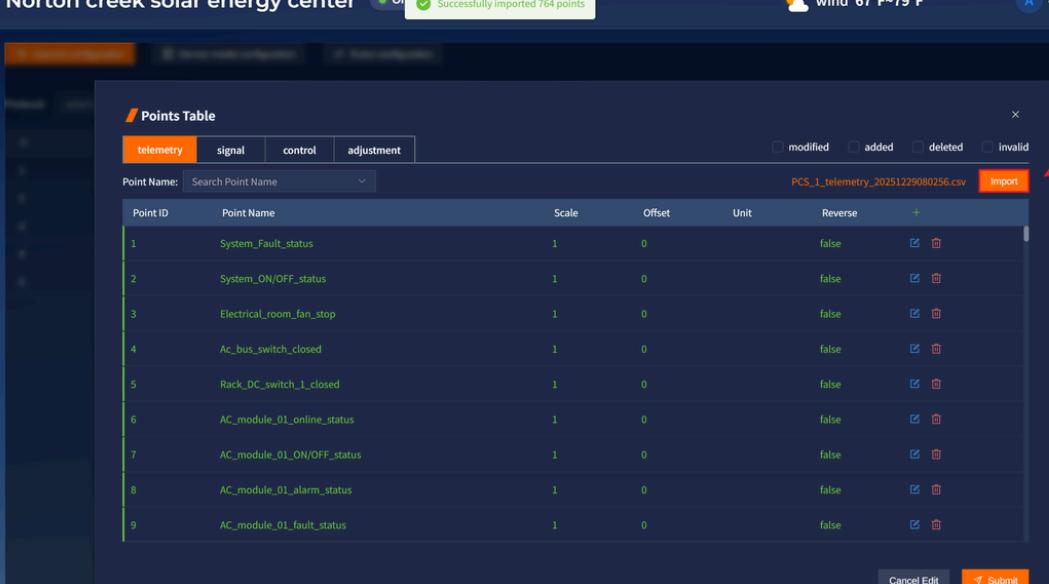
1	test test required and cannot contain spaces	-	1	0	false		
---	---	---	---	---	-------	--	--

Point configuration rules:

- `point_id` : Positive integer (required, unique)
- `signal_name` : String, no spaces allowed (required)
- `scale` : Numeric (required)
- `offset` : Numeric (required)
- `unit` : String (optional)
- `reverse` : true/false (required)

Note: Point edits follow batch-edit principles. Make all changes locally first, then click Submit only after all changes are complete and error-free. The same applies to later mapping edits.

## Import Points from a File



The screenshot shows the Monarch platform interface for managing points. On the left, there's a sidebar with navigation links: Home, Devices, Alarm, Control, Statistics, Setting (which is selected), System Setting, User Management, and Configuration. The main area is titled "Norton creek solar energy center". A success message at the top right says "Successfully imported 764 points". Below it, the weather is displayed as "wind 67°F~79°F". The central part of the screen is a modal window titled "Points Table". It has tabs for telemetry, signal, control, and adjustment, with "telemetry" selected. There are checkboxes for modified, added, deleted, and invalid filters. A search bar for "Point Name" is present. The main table lists 9 points with the following details:

Point ID	Point Name	Scale	Offset	Unit	Reverse	Add	Delete
1	System_Fault_status	1	0	false	<input checked="" type="checkbox"/>		
2	System_ON/OFF_status	1	0	false	<input checked="" type="checkbox"/>		
3	Electrical_room_fan_stop	1	0	false	<input checked="" type="checkbox"/>		
4	Ac_bus_switch_closed	1	0	false	<input checked="" type="checkbox"/>		
5	Rack_DC_switch_1_closed	1	0	false	<input checked="" type="checkbox"/>		
6	AC_module_01_online_status	1	0	false	<input checked="" type="checkbox"/>		
7	AC_module_01_ON/OFF_status	1	0	false	<input checked="" type="checkbox"/>		
8	AC_module_01_alarm_status	1	0	false	<input checked="" type="checkbox"/>		
9	AC_module_01_fault_status	1	0	false	<input checked="" type="checkbox"/>		

At the bottom of the modal are "Cancel Edit" and "Submit" buttons. A red arrow points to the "Import" button in the top right corner of the modal window.

1. Click **Import**, choose a **.csv** file to import. File requirements differ by point type:

- telemetry/adjustment
  - Required headers (must include the following; extra headers are ignored):

`point_id,signal_name,scale,offset,unit,reverse`

- Field descriptions: follow the point configuration rules.
- Format screenshot:

point_id	point_name	scale	offset	unit	reverse
1	System_Fault_status	1	0		FALSE
2	System_ON/OFF_status	1	0		FALSE
3	Electrical_room_fan_stop	1	0		FALSE
4	Ac_bus_switch_closed	1	0		FALSE
5	Rack_DC_switch_1_closed	1	0		FALSE
6	AC_module_01_online_status	1	0		FALSE
7	AC_module_01_ON/OFF_status	1	0		FALSE
8	AC_module_01_alarm_status	1	0		FALSE
9	AC_module_01_fault_status	1	0		FALSE
10	EPO	1	0		FALSE
11	CAN_A_comm_Fault	1	0		FALSE
12	Module_Fan_fault_1	1	0		FALSE
13	Module_over_temperature_1	1	0		FALSE
14	Temp_sensor_1_fault	1	0		FALSE
15	Bms_dry_contact_fault	1	0		FALSE
16	Module_over_current_fault_1	1	0		FALSE
17	Module_current_abnormal_1	1	0		FALSE
18	DC_input_over_voltage	1	0		FALSE
19	DC_bus_over_voltage	1	0		FALSE
20	AC_bus_over_voltage	1	0		FALSE
21	Off-grid_Volt_abnormal	1	0		FALSE
22	Module_temperature	1	0		FALSE
23	Ambient_temperature	1	0		FALSE
24	Cabinet_temperature	1	0		FALSE
25	Nominal_online_capacity	0.1	0	kVA	FALSE
26	Total_PF_of_AC_bus	1	0		FALSE
27	L1_PF_of_AC_bus	1	0		FALSE
28	I2 PF of AC bus	1	0		FALSE

- signal/control
  - Required headers (must include the following; extra headers are ignored):

`point_id,point_name,reverse`

- Field descriptions: follow the point configuration rules.
- Format screenshot:

point_id	point_name	reverse
1	Grid_interconnection_mode	FALSE
2	Advanced_control_commands_1_bit0	FALSE
3	Advanced_control_commands_1_bit1	FALSE
4	Energy_dispatching_mode	FALSE
5	Active_power_control_mode	FALSE
6	Reactive_power_control_mode	FALSE
7	DC_control_mode	FALSE
8	Control_mode	FALSE
9	Bms_protocol	FALSE
10	Start_up_mode	FALSE
11	Input_dry_contact_A_custom_function	FALSE
12	Input_dry_contact_B_custom_function	FALSE
13	Input_dry_contact_C_custom_function	FALSE
14	Input_dry_contact_D_custom_function	FALSE
15	Output_dry_contact_A_custom_function	FALSE
16	Power_change_mode	FALSE
17	Anti-islanding_enable	FALSE
18	FVRT_mode	FALSE
19	Permit_service	FALSE
20	FVRT_power_mode	FALSE
21	Off-grid_Volt_startup_mode	FALSE
22	Power_priority_mode	FALSE
23	Micro-grid_power_supply_mode	FALSE
24	Limit_export_function	FALSE
25	Capacity_ratio_limits_function	FALSE
26	Q(U)_reactive_power_limit_mode	FALSE
27	RTU_Baud_rate	FALSE
28	Rated_Freauency	FALSE

#### Note:

- All imported records are rendered as "added" (green highlight). Even with validation errors, records are imported but marked as "invalid" so you can fix them in the UI.
- Each import overwrites the current point information.

## Add Points

1. Click the **Add** icon button to create an editable row at the top of the current point-type table.
2. Fill in the row according to the configuration rules.
3. Click the **checkmark** icon to confirm the local add.
4. Click the **X** icon to cancel the local add.
5. After confirmation, the new row appears as shown and can be filtered by **added**.

**Note:** Each tab allows only one pending add at a time. A new add row appears only after the previous add is confirmed or canceled. If a pending add row exists, clicking Add again will not create another row.

## Delete Points

1. Click the **delete** icon for the target row to delete it locally.

2. Deleted rows appear as shown and can be filtered by **deleted**.

3. Click the restore icon to undo the local delete.

## Modify Points

1. Click the **edit** icon for the target point to modify it.

2. Modify according to the configuration rules. For existing points, the ID cannot be changed.

3. For newly added points, the ID can be changed.

4. Click the **confirm** icon to save the local modification.

5. Click the **cancel** icon to cancel the modification.

6. Modified rows appear as shown, with changed data marked in blue and filterable by **modified**.

## Submit All Changes

1. Before submission, ensure all modified point data is valid. Errors appear below invalid data.

2. Click **Submit** to submit the batch changes.

3. Click **Cancel Edit** to exit edit mode and restore the original point data.

**Note:** You do not need to run a manual search. After clicking Submit, if issues exist you can jump directly to them.

## Export Point CSV Files

.png)

Click **Export** to export the table data under the current tab as **.csv**. The filename format is: **channel name + tab name (telemetry/signal/control/adjustment) + current timestamp**.

# Channel Point Mapping Configuration

## Batch Edit Point Mappings

The screenshot shows the MONARCH software interface with the title "Norton creek solar energy center" and status "Online". The left sidebar includes options like Home, Devices, Alarm, Control, Statistics, Setting (which is selected), System Setting, User Management, and Configuration. The main area displays a "Mappings Table" with a tab bar for "telemetry", "signal", "control", and "adjustment". The "telemetry" tab is selected. The table has columns for Point ID, Point Name, Slave ID, Function Code, Register Address, Data Type, Byte Order, Bit Position, and Operation. A search bar "Point Name: Search Point Name" is at the top of the table. At the bottom right of the table, there are "Cancel" and "Edit" buttons. A red arrow points to the "Edit" button.

Point ID	Point Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position	Operation
1	System_Fault_status	1	3	32	uint16	AB	0	☒
2	System_ON/OFF_status	1	3	33	uint16	AB	0	☒
3	Electrical_room_fan_stop	1	3	36	uint16	AB	0	☒
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0	☒
5	Rack_DC_switch_1_closed	1	3	43	uint16	AB	0	☒
6	AC_module_01_online_status	1	3	90	uint16	AB	0	☒
7	AC_module_01_ON/OFF_status	1	3	91	uint16	AB	0	☒
8	AC_module_01_alarm_status	1	3	92	uint16	AB	0	☒
9	AC_module_01_fault_status	1	3	93	uint16	AB	0	☒

1. In the mappings view, click **Edit** to enter mapping edit mode.

The screenshot shows the MONARCH software interface with the title "Norton creek solar energy center" and status "Online". The left sidebar includes options like Home, Devices, Alarm, Control, Statistics, Setting (which is selected), System Setting, User Management, and Configuration. The main area displays a "Mappings Table" with a tab bar for "telemetry", "signal", "control", and "adjustment". The "telemetry" tab is selected. The table has columns for Point ID, Point Name, Slave ID, Function Code, Register Address, Data Type, Byte Order, Bit Position, and Operation. A search bar "Point Name: Search Point Name" is at the top of the table. At the bottom right of the table, there are "Cancel Edit" and "Submit" buttons. A red arrow points to the filter checkboxes for "modified" and "invalid".

Point ID	Point Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position	Operation
1	System_Fault_status	1	3	32	uint16	AB	0	☒
2	System_ON/OFF_status	1	3	33	uint16	AB	0	☒
3	Electrical_room_fan_stop	1	3	36	uint16	AB	0	☒
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0	☒
5	Rack_DC_switch_1_close d	1	3	43	uint16	AB	0	☒
6	AC_module_01_online_st atus	1	3	90	uint16	AB	0	☒
7	AC_module_01_ON/OFF_s tatus	1	3	91	uint16	AB	0	☒
8	AC_module_01_alarm_sta tus	1	3	92	uint16	AB	0	☒

1. During editing, you can filter changes by:

- **modified:** Filters points that were actually modified. Modified rows are shown in blue, and modified data is highlighted in blue.

- **invalid:** Filters points with issues after add/modify. Problematic rows show orange markers with a dark red background.

1	System_Fault_Status	-1 must be 1-247	3	4	5 not allowed	1 not allowed	2	<input checked="" type="checkbox"/>
---	---------------------	---------------------	---	---	------------------	------------------	---	-------------------------------------

Point mapping rules (mapping fields differ by channel type):

#### modbus\_rtu/modbus\_tcp:

- **Function Code** depends on point type (four-remote):
  - **telemetry:** 3, 4
  - **signal:** 1, 2, 3, 4
  - **control:** 5, 15, 6, 16
  - **adjustment:** 6, 16
- **Data Type:**
  - **telemetry:** int16, uint16, int32, float32, uint32, int64, uint64, float64
  - **signal:** same as telemetry, plus bool
  - **control:** same as telemetry, plus bool
  - **adjustment:** same as telemetry
- **Byte Order** options depend on data length:
  - **bool:** no restriction
  - **16-bit:** AB, BA
  - **32-bit:** AB, BA, ABCD, DCBA, BADC, CDAB
  - **64-bit:** adds ABCDEFGH, HGFEDCBA, BADCFEHG, GHEFCDAB to the 32-bit list
- **Bit Position:** Editable only when dataType is bool with functionCode 3/4, or for 16-bit integers (0-15). Other types are fixed at 0.

## Import Point Mappings from File

The screenshot shows the MONARCH software interface for the Norton creek solar energy center. The left sidebar has a dark blue theme with various navigation options like Home, Devices, Alarm, Control, Statistics, and Setting. Under Setting, Configuration is selected. The main area is titled 'Mappings Table' and shows a table with columns: telemetry, signal, control, and adjustment. The 'telemetry' tab is active. A file named 'PCS\_1\_telemetry\_mapping\_20251229080927.csv' is selected in the table, and the 'Import' button is highlighted with a red arrow. The table contains 8 rows of data, each representing a point configuration.

Point ID	Point Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position	Operation
1	System_Fault_status	1	3	32	uint16	AB	0	
2	System_ON/OFF_status	1	3	33	uint16	AB	0	
3	Electrical_room_fan_stop	1	3	36	uint16	AB	0	
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0	
5	Rack_DC_switch_1_closed	1	3	43	uint16	AB	0	
6	AC_module_01_online_status	1	3	90	uint16	AB	0	
7	AC_module_01_ON/OFF_status	1	3	91	uint16	AB	0	
8	AC_module_01_alarm_status	1	3	92	uint16	AB	0	

1. Click **Import** and select a CSV file to import. Requirements differ by channel type:

- **modbus\_rtu/modbus\_tcp**

- Required headers:

```
point_id,slave_id,function_code,register_address,data_type,byte_order,bit_positi
on
```

- Field descriptions: follow the point configuration rules.

- Format screenshot:

point_id	point_name	reverse		
1	Grid_interconnection_mode	FALSE		
2	Advanced_control_commands_1_bit0	FALSE		
3	Advanced_control_commands_1_bit1	FALSE		
4	Energy_dispatching_mode	FALSE		
5	Active_power_control_mode	FALSE		
6	Reactive_power_control_mode	FALSE		
7	DC_control_mode	FALSE		
8	Control_mode	FALSE		
9	Bms_protocol	FALSE		
10	Start_up_mode	FALSE		
11	Input_dry_contact_A_custom_function	FALSE		
12	Input_dry_contact_B_custom_function	FALSE		
13	Input_dry_contact_C_custom_function	FALSE		
14	Input_dry_contact_D_custom_function	FALSE		
15	Output_dry_contact_A_custom_function	FALSE		
16	Power_change_mode	FALSE		
17	Anti-islanding_enable	FALSE		

- **di\_do**

- Required headers:

```
point_id, gpio_number
```

- Field descriptions: follow the point configuration rules.

- Format screenshot:

point_id	gpio_number
1	504
2	505
3	506
4	507
5	508
6	509
7	510
8	511

#### Note:

- When modifying instance point mappings by import, the imported data overwrites the current mapping information.
- During import, points are matched by point ID. If a point ID does not exist on the page, it is ignored. If duplicate mappings exist, the later one is used.

## Manually Edit Point Mappings

Point ID	Point Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position	Operation
1	System_Fault_status	1	3	32	uint16	AB	0	<input checked="" type="checkbox"/> <input type="checkbox"/>
2	System_ON/OFF_status	1	3	33	uint16	AB	0	<input type="checkbox"/>
3	Electrical_room_fan_stop	2	3	36	uint16	AB	0	<input checked="" type="checkbox"/>
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0	<input type="checkbox"/>
5	Rack_DC_switch_1_close	1	3	43	uint16	AB	0	<input type="checkbox"/>
6	AC_module_01_online_status	1	3	90	uint16	AB	0	<input type="checkbox"/>
7	AC_module_01_ON/OFF_status	1	3	91	uint16	AB	0	<input type="checkbox"/>
	AC_module_01_alarm_sta							

1. Click the **edit icon** for the target point mapping to modify it.

2. Modify according to the mapping rules. For existing points, the ID cannot be changed.
3. Click the **confirm icon** to save the local change.
4. Click the **cancel icon** to cancel.
5. Modified rows appear as shown, with changed data marked in blue and filterable by modified.

## Submit All Changes

The screenshot shows the MONARCH web interface with the title "Norton creek solar energy cent". The "Mappings Table" is open, displaying a single row with an error message: "Signal Name -1 must be 1-247". The "control\_mapping.csv" file is selected for import. At the bottom right, there are three buttons: "Cancel Edit" (button 3), "Submit" (button 2), and "Import" (button 1). Red arrows point from the text labels below to these respective buttons.

Point ID	Signal Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position	Operation
1	System_Fault_status	-1	3	4	5	not allowed	1	not allowed

1. Before submission, ensure all mapping data is valid. Errors appear below invalid data.
2. Click **Submit** to submit the batch changes.
3. Click **Cancel Edit** to exit edit mode and restore the original mapping data. Note: You do not need to run a manual search. After clicking **Submit**, if issues exist you can jump directly to them.

## Export Point Mapping CSV Files

The screenshot shows the MONARCH software interface for the 'Norton creek solar energy center'. The left sidebar includes options like Home, Devices, Alarm, Control, Statistics, and Setting (which is selected). Under Setting, there are sub-options: System Setting, User Management, and Configuration. The main area displays a 'Mappings Table' dialog box. The table has tabs for telemetry, signal, control, and adjustment, with 'telemetry' selected. It lists 9 points with details such as Point ID, Point Name, Slave ID, Function Code, Register Address, Data Type, Byte Order, and Bit Position. A search bar at the top allows searching by point name. At the bottom right of the table, there are 'Cancel' and 'Edit' buttons, with a red arrow pointing to the 'Export' button.

Point ID	Point Name	Slave ID	Function Code	Register Address	Data Type	Byte Order	Bit Position
1	System_Fault_status	1	3	32	uint16	AB	0
2	System_ON/OFF_status	1	3	33	uint16	AB	0
3	Electrical_room_fan_stop	1	3	36	uint16	AB	0
4	Ac_bus_switch_closed	1	3	37	uint16	AB	0
5	Rack_DC_switch_1_closed	1	3	43	uint16	AB	0
6	AC_module_01_online_status	1	3	90	uint16	AB	0
7	AC_module_01_ON/OFF_status	1	3	91	uint16	AB	0
8	AC_module_01_alarm_status	1	3	92	uint16	AB	0
9	AC_module_01_fault_status	1	3	93	uint16	AB	0

.png)

1. Click **Export** to export the table data for the current point type as **.csv**. The filename format is: **channel name + tab name (telemetry/signal/control/adjustment) + "\_mapping" + current timestamp**.

# Device Instance Configuration

The screenshot shows the MONARCH software interface for managing device instances. The top navigation bar includes the title "Norton creek solar energy center" with an "Online" status indicator, a weather icon showing "wind 67°F~79°F", and a user account "admin". The left sidebar has a "Setting" section selected, containing "System Setting", "User Management", and "Configuration". The main content area displays a table of device instances:

ID	Name	Description	Protocol	Enabled	Connected	Operation
1	PCS#1	变流器 #1	modbus_tcp	<input checked="" type="checkbox"/>	Disconnected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
2	BAMS#1	电池管理系统 #1 (Ampace)	modbus_tcp	<input checked="" type="checkbox"/>	Disconnected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
3	GENSET#1	柴油发电机组 #1	modbus_rtu	<input checked="" type="checkbox"/>	Connected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>
4	ECU1170_GPIO	ECU1170 本机DI/DO	di_do	<input type="checkbox"/>	Disconnected	<a href="#">Detail</a> <a href="#">Points</a> <a href="#">Delete</a>

At the bottom right, there are pagination controls: "Total 4", "20/page", and page numbers "1" and "2".

This chapter includes: instance management, instance point configuration, and instance point routing configuration.

# Instance Management

## Query Device Instances

The screenshot shows the MONARCH Instance Management interface for the 'Norton creek solar energy center'. The top navigation bar includes 'channel configuration', 'Device model configuration' (which is selected), and 'Rules configuration'. On the right, there's a weather widget showing 'wind 67°F~79°F' and a user profile for 'admin'. The main content area has three numbered callouts:

- Callout 1: A red box highlights the 'productName:' dropdown menu, which contains the placeholder 'Please select productName'. An arrow points from this callout to the dropdown.
- Callout 2: A red arrow points from the 'Search' button to the user profile area.
- Callout 3: A red arrow points from the 'Search' button to the 'Search' button itself.

The central table lists device instances with columns for ID, Instance Name, Product Name, and Operation. The data is as follows:

ID	Instance Name	Product Name	Operation
1	battery_01	battery_pack	[Detail] [Points] [Delete]
2	diesel_gen_01	diesel_generator	[Detail] [Points] [Delete]
3	pcs_01	pcs	[Detail] [Points] [Delete]
4	pv_01	pv_inverter	[Detail] [Points] [Delete]

At the bottom, there are pagination controls: 'Total 4', '20/page', and page numbers 1 and 2.

1. You can filter instances by:

- **Product\_Name** : The product name of the instance.

2. Click **Search** to filter.

3. Click **Reload** to reset.

## Add a Device Instance

The screenshot shows the 'Device model configuration' tab selected in the top navigation bar. A table lists four device instances: 'battery\_01' (Product Name: 'battery\_pack'), 'diesel\_gen\_01' (Product Name: 'diesel\_generator'), 'pcs\_01' (Product Name: 'pcs'), and 'pv\_01' (Product Name: 'pv\_inverter'). The 'Setting' menu item is highlighted in orange. A red arrow labeled '1' points to the '+ New Instance' button in the top right corner of the table header.

The screenshot shows the 'Device Instance Detail' dialog box. It has two tabs: 'Basic Information' and 'Advanced Information'. The 'Basic Information' tab is active, showing fields for 'Instance Name' (placeholder: 'Please enter instance name') and 'Product Name' (placeholder: 'Please select product'). Below these are two property rows: 'Key : Value' and another 'Key : Value'. A red arrow labeled '2' points to the 'Instance Name' field. A red arrow labeled '3' points to the '+' icon for adding a new property. A red arrow labeled '4' points to the delete icon for a property row. A red arrow labeled '5' points to the 'Submit' button at the bottom right. A red arrow labeled '6' points to the 'Cancel' button at the bottom left.

1. Click **New Instance** to open the add dialog.
2. Enter the required parameters. Refer to the instance field definitions in the basic concepts.
3. Click the add property icon to add a property value.
4. Click the delete property icon to remove a property value.
5. Click **Submit** to create the instance.
6. Click **Cancel** to cancel.

# View Device Instance Details

The screenshot shows the 'Device model configuration' page for the 'Norton creek solar energy center'. The left sidebar has a 'Setting' section with 'Configuration' selected. The main area displays a table of device instances:

ID	Instance Name	Product Name	Operation
1	battery_01	battery_pack	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
2	diesel_gen_01	diesel_generator	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
3	pcs_01	pcs	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>
4	pv_01	pv_inverter	<input type="button" value="Detail"/> <input type="button" value="Points"/> <input type="button" value="Delete"/>

A red arrow points to the 'Detail' button for the first instance (battery\_01). The status bar at the bottom right shows 'Total 4' and '20/page'.

The screenshot shows the 'Device Instance Detail' dialog box. It contains the following information:

**Basic Information**

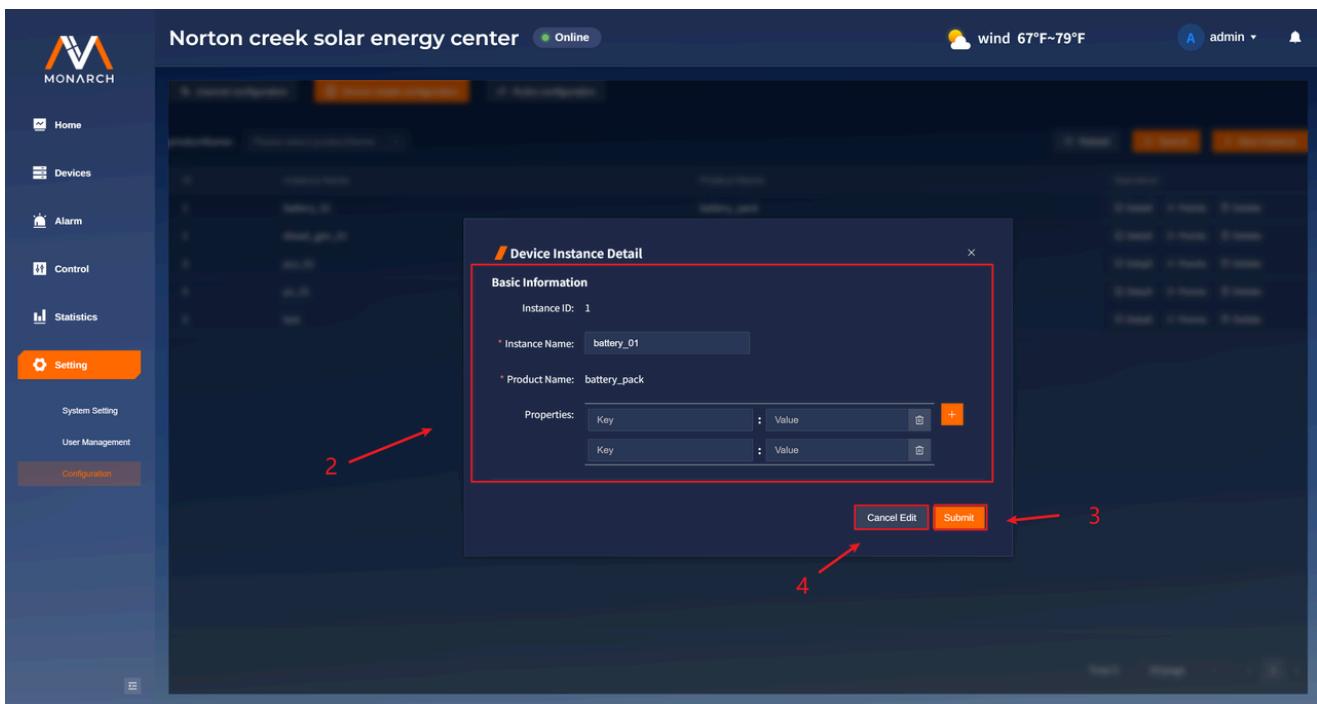
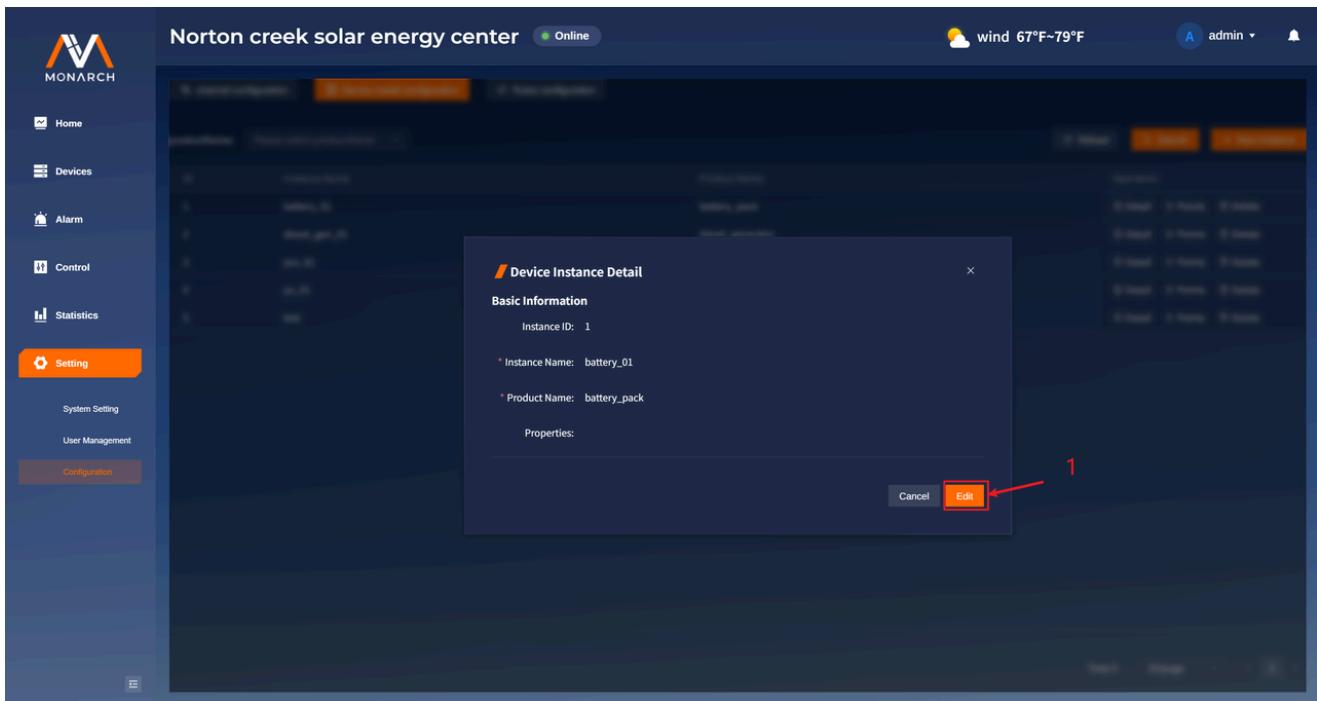
- Instance ID: 1
- \* Instance Name: battery\_01
- \* Product Name: battery\_pack

Properties:

Cancel

1. Click **Detail** in the **Operation** column to open the instance details dialog.

# Edit Device Instances



1. In the instance details dialog, click **Edit** to enter edit mode.
2. During editing, **Product Name** cannot be changed; other fields are the same as in add.
3. Click **Submit** to save changes.
4. Click **Cancel Edit** to cancel.

## Delete Device Instances

The screenshot shows the 'Device model configuration' section of the Norton creek solar energy center interface. A table lists five device instances: battery\_01, diesel\_gen\_01, pcs\_01, pv\_01, and test. The 'test' row is highlighted with a red box. In the 'Operation' column for the 'test' row, the 'Delete' button is also highlighted with a red box. Red arrows point from the text '1. Click Delete in the Operation column for the target device instance row.' to both the red box around the row and the red box around the 'Delete' button.

ID	Instance Name	Product Name	Operation
1	battery_01	battery_pack	[Detail] [Points] [Delete]
2	diesel_gen_01	diesel_generator	[Detail] [Points] [Delete]
3	pcs_01	pcs	[Detail] [Points] [Delete]
4	pv_01	pv_inverter	[Detail] [Points] [Delete]
5	test	battery_cell	[Detail] [Points] [Delete]

The screenshot shows the same 'Device model configuration' page. A confirmation dialog box titled 'Delete Instance' is displayed in the center. It contains the message 'Are you sure you want to delete instance "test"?'. Below the message are two buttons: 'Cancel' and 'Confirm', with 'Confirm' highlighted by a red box. Red arrows point from the text '2. Click Confirm to delete.' to the red box around the 'Confirm' button and from the text '3. Click Cancel to cancel.' to the red box around the 'Cancel' button.

1. Click **Delete** in the **Operation** column for the target device instance row.
2. Click **Confirm** to delete.
3. Click **Cancel** to cancel.

# Instance Point Configuration

ID	Instance Name	Product Name
1	battery_01	battery_pack
2	diesel_gen_01	diesel_generator
3	pcs_01	pcs
4	pv_01	pv_inverter
5	test	battery_cell

property	measurement	action
Point Name: Search Point Name		
1	Pack Voltage	0 V
2	Pack Current	0 A
3	SOC	0 %
4	SOH	0 %
5	Cell Voltages Array	0 V
6	Cell Temperatures Array	0 °C
7	Max Cell Voltage	0 V
8	Min Cell Voltage	0 V
9	Average Cell Voltage	0 V

1. Click **Points** in the **Operation** column of the target instance row to open the points dialog.
2. The **View Mode** selector switches between point view and routing view (default is point view).
3. Use the tabs to switch point types. In point view there are three tabs: **Property**, **measurement**, **action**.
4. The point filter box supports fuzzy search by name or precise search via dropdown selection.

5. **Export** exports the current point-type table as CSV.

6. **Execute** issues a point command.

7. **Cancel** closes the dialog.

## Issue Point Commands

Norton creek solar energy center Online

MONARCH

Home Devices Alarm Control Statistics Setting System Setting User Management Configuration

Points Table

property	measurement	action			
Point ID	Point Name	Value	Unit	Description	Operation
1	Enable Pack	10			<input type="button" value="Execute"/>
2	Disable Pack	-			<input type="button" value="Execute"/>
3	Start Cell Balancing	-			<input type="button" value="Execute"/>
4	Stop Cell Balancing	-			<input type="button" value="Execute"/>

View Mode:

Export

Cancel

Norton creek solar energy center Online

MONARCH

Home Devices Alarm Control Statistics Setting System Setting User Management Configuration

Points Table

Execute

\* Value:

Cancel

Norton creek solar energy center Online Execute success!

MONARCH

Home Devices Alarm Control Statistics Setting System Setting User Management Configuration

Points Table

Point ID	Point Name	Value	Unit	Description	Operation
1	Enable Pack	20	-	-	Execute
2	Disable Pack	-	-	-	Execute
3	Start Cell Balancing	-	-	-	Execute
4	Stop Cell Balancing	-	-	-	Execute

View Mode: Points Routing

Export

Cancel

2. Click **Execute** in the **Operation** column for the target point to open the execute dialog.
3. Enter the value to execute (numeric).
4. Click **Submit** to submit.
5. Click **Cancel** to cancel.
6. After successful submission, the value changes.

## Export Point CSV Files

Norton creek solar energy center Online

MONARCH

Home Devices Alarm Control Statistics Setting System Setting User Management Configuration

Points Table

Point ID	Point Name	Value	Unit	Description	Operation
1	Enable Pack	10	-	-	Execute
2	Disable Pack	-	-	-	Execute
3	Start Cell Balancing	-	-	-	Execute
4	Stop Cell Balancing	-	-	-	Execute

View Mode: Points Routing

Export

Cancel

1. Click **Export** to export the current table data. The CSV filename format is: **instance name\_point type (property/measurement/action)\_points\_timestamp.csv**. The exported file looks like:

	A	B	C	D	E
1	point_id	point_name	value	unit	description
2	1	Enable Pack			
3	2	Disable Pack			
4	3	Start Cell Balancing			
5	4	Stop Cell Balancing			
6					
7					
8					
a					

# Instance Point Routing Configuration

The screenshot shows the 'Routings Table' configuration screen in the Monarch software. The table lists various instance points with their details: Point ID, Point Name, Channel, Point Type, Point, and Enabled status. The 'Point Name' column includes entries like 'Pack Voltage', 'Pack Current', 'SOC', 'SOH', 'Cell Voltages Array', 'Cell Temperatures Array', 'Max Cell Voltage', 'Min Cell Voltage', and 'Average Cell Voltage'. The 'Point Type' column shows they are all Telemetry. The 'Point' column contains names like 'BamsVoltage', 'BamsCurrent', 'BamsPower', etc. The 'Enabled' column shows most points are true. At the top right of the table, there is a 'View Mode' dropdown menu with three options: 'Points' (selected), 'Routing' (highlighted with a red border), and 'Measurement'. Below the table, there are 'Cancel' and 'Edit' buttons. Red arrows labeled '1' and '2' point to the 'View Mode' dropdown and the 'Edit' button respectively.

Point ID	Point Name	Channel	Point Type	Point	Enabled
1	Pack Voltage	BAMS#1	Telemetry	BamsVoltage	true
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true
3	SOC	BAMS#1	Telemetry	BamsPower	true
4	SOH	BAMS#1	Telemetry	BamsSoc	true
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoH	true
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true

1. Switch to **Routing** in **View Mode** to open the instance point routing view.

2. Click **Edit** to enter routing edit mode.

Note: Property points are inherent product attributes and do not require routing to channel points, so only measurement and action types appear in routing.

## Export Point Routing CSV Files

The screenshot shows the 'Routings Table' configuration screen in the Monarch software. The table lists various instance points with their details: Point ID, Point Name, Channel, Point Type, Point, and Enabled status. The 'Point Name' column includes entries like 'Pack Voltage', 'Pack Current', 'SOC', 'SOH', 'Cell Voltages Array', 'Cell Temperatures Array', 'Max Cell Voltage', 'Min Cell Voltage', and 'Average Cell Voltage'. The 'Point Type' column shows they are all Telemetry. The 'Point' column contains names like 'BamsVoltage', 'BamsCurrent', 'BamsPower', etc. The 'Enabled' column shows most points are true. At the top right of the table, there is a 'View Mode' dropdown menu with three options: 'Points' (selected), 'Routing' (highlighted with a red border), and 'Measurement'. Below the table, there are 'Cancel' and 'Edit' buttons. Red arrows labeled '1' and '2' point to the 'View Mode' dropdown and the 'Edit' button respectively.

Point ID	Point Name	Channel	Point Type	Point	Enabled
1	Pack Voltage	BAMS#1	Telemetry	BamsVoltage	true
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true
3	SOC	BAMS#1	Telemetry	BamsPower	true
4	SOH	BAMS#1	Telemetry	BamsSoc	true
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoH	true
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true

2. Click **Export** to export the current table data. The CSV filename format is: **instance name\_point type (measurement/action)\_routing\_timestamp.csv**. Example:

A	B	C	D	E	F	G	H
1	point_id	point_name	channel_id	channel_name	channel_point_type	channel_point_id	channel_point_name
2	1	Pack Voltage	2	BAMS#1	T	1	BamsVoltage
3	2	Pack Current	2	BAMS#1	T	2	BamsCurrent
4	3	SOC	2	BAMS#1	T	3	BamsPower
5	4	SOH	2	BAMS#1	T	4	BamsSoc
6	5	Cell Voltages Array	2	BAMS#1	T	5	BamsSoh
7	6	Cell Temperatures Arra	2	BAMS#1	T	6	BamsPermitChgPower
8	7	Max Cell Voltage	2	BAMS#1	T	7	BamsPermitDsgPower
9	8	Min Cell Voltage	2	BAMS#1	T	8	BamsPermitChgCurrent
10	9	Average Cell Voltage	2	BAMS#1	T	9	BamsPermitDsgCurrent
11	10	Cell Voltage Imbalance	2	BAMS#1	T	10	BamsBcuSocDiff
12	11	Max Cell Temperature	2	BAMS#1	T	11	BamsBcuMinSoc
13	12	Min Cell Temperature	2	BAMS#1	T	12	BamsBcuMinSocNo
14	13	Balancing Status Array	2	BAMS#1	T	13	BamsBcuMaxSoc
15	14	Protection Status	2	BAMS#1	T	14	BamsBcuMaxSocNo
16	15	Cell Count	2	BAMS#1	T	15	BamsMaxCellVol
17							TRUE
18							
19							
20							
21							
22							
23							
24							

In the exported file, **point\_type** uses abbreviations: **T = Telemetry, S = Signal, C = Control, A = Adjustment.**

## Batch Edit Instance Point Routing

The screenshot shows the Monarch platform interface for the 'Norton creek solar energy center'. The left sidebar includes navigation links for Home, Devices, Alarm, Control, Statistics, and Configuration. The main area displays a 'Routings Table' dialog box. The table lists 9 instance points, each with a Point ID, Point Name, Channel, Point Type, Point, and Enabled status. The 'Point Name' column shows names like 'Pack Voltage', 'Pack Current', 'SOC', etc. The 'Point Type' column shows 'Telemetry' for most points. The 'Enabled' column shows 'true' for all points. At the bottom of the dialog box, there are 'Cancel' and 'Edit' buttons, with a red arrow pointing to the 'Edit' button.

Point ID	Point Name	Channel	Point Type	Point	Enabled
1	Pack Voltage	BAMS#1	Telemetry	BamsVoltage	true
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true
3	SOC	BAMS#1	Telemetry	BamsPower	true
4	SOH	BAMS#1	Telemetry	BamsSoc	true
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoh	true
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true

The screenshot shows the Monarch platform interface for the Norton creek solar energy center. The left sidebar includes links for Home, Devices, Alarm, Control, Statistics, Setting (which is selected), System Setting, User Management, and Configuration. The main content area is titled 'Routings Table' and contains a table with columns: Point ID, Point Name, Channel, Channel Point Type, Channel Point, Enabled, and Operation. A search bar for 'Point Name' is at the top. Below the table are 'Cancel Edit' and 'Submit' buttons. A red arrow points to the 'modified' checkbox in the top right corner of the table header.

Point ID	Point Name	Channel	Channel Point Type	Channel Point	Enabled	Operation
1	Pack Voltage	BAMS#1	Telemetry	BamsVoltage	true	<input checked="" type="checkbox"/>
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true	<input checked="" type="checkbox"/>
3	SOC	BAMS#1	Telemetry	BamsPower	true	<input checked="" type="checkbox"/>
4	SOH	BAMS#1	Telemetry	BamsSoC	true	<input checked="" type="checkbox"/>
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoh	true	<input checked="" type="checkbox"/>
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true	<input checked="" type="checkbox"/>
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true	<input checked="" type="checkbox"/>
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true	<input checked="" type="checkbox"/>
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true	<input checked="" type="checkbox"/>

1. Click **Edit** to enter routing edit mode.

2. During editing, you can filter by:

- **modified:** Filters points that were actually modified. Modified rows are shown in blue, and modified data is highlighted in blue.

2	Pack Current	PCS#1	Telemetry	System_ON/OFF_status	true	<input checked="" type="checkbox"/>
---	--------------	-------	-----------	----------------------	------	-------------------------------------

- **invalid:** Filters points with issues after add/modify. Problematic rows show orange markers with a dark red background.

1	Pack Voltage	999 Does not exist	Telemetry	1 Does not exist	true	<input checked="" type="checkbox"/>
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## Point routing configuration rules:

- Channel is the channel that hosts the channel point mapped to the instance point.
- Channel Point Type is the four-remote type of the mapped channel point. Available values depend on the channel protocol:
  - For modbus\_rtu and modbus\_tcp channels: for measurement points, Channel Point Type can only be Telemetry or Signal; for action points, it can only be Control or Adjustment.
  - For di\_do channels: for measurement points, Channel Point Type can only be Signal; for action points, it can only be Control.
- Channel Point is the channel point mapped to the instance point.
- The three fields must be selected in order: Channel → Channel Point Type → Channel Point.

## Manually Edit Routing

Point ID	Point Name	Channel	Channel Point Type	Channel Point	Enabled	Operation
1	Pack Voltage	BAMS#1	Telemetry	BamsCurrent	true	<input checked="" type="checkbox"/>
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
3	SOC	BAMS#1	Telemetry	BamsPower	true	<input checked="" type="checkbox"/>
4	SOH	BAMS#1	Telemetry	BamsSoc	true	<input checked="" type="checkbox"/>
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoh	true	<input checked="" type="checkbox"/>
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true	<input checked="" type="checkbox"/>
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true	<input checked="" type="checkbox"/>
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true	<input checked="" type="checkbox"/>
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true	<input checked="" type="checkbox"/>

1. Click the **edit icon** for the target routing row.
2. Modify according to the routing rules. For existing points, the ID cannot be changed.
3. Click the **confirm icon** to save the local change.
4. Click the **cancel icon** to cancel.

5. Modified rows appear as shown, with changed data marked in blue and filterable by modified.

## Import Routing from File

Point ID	Point Name	Channel	Channel Point Type	Channel Point	Enabled	Operation
1	Pack Voltage	BAMS#1	Telemetry	BamsVoltage	true	<input checked="" type="checkbox"/>
2	Pack Current	BAMS#1	Telemetry	BamsCurrent	true	<input checked="" type="checkbox"/>
3	SOC	BAMS#1	Telemetry	BamsPower	true	<input checked="" type="checkbox"/>
4	SOH	BAMS#1	Telemetry	BamsSoc	true	<input checked="" type="checkbox"/>
5	Cell Voltages Array	BAMS#1	Telemetry	BamsSoh	true	<input checked="" type="checkbox"/>
6	Cell Temperatures Array	BAMS#1	Telemetry	BamsPermitChgPower	true	<input checked="" type="checkbox"/>
7	Max Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgPower	true	<input checked="" type="checkbox"/>
8	Min Cell Voltage	BAMS#1	Telemetry	BamsPermitChgCurrent	true	<input checked="" type="checkbox"/>
9	Average Cell Voltage	BAMS#1	Telemetry	BamsPermitDsgCurrent	true	<input checked="" type="checkbox"/>

1. Click **Import** and select a .csv file. The file must meet the following requirements:

- Required headers (must include the following; extra headers are ignored):
  - `point_id,channel_id,channel_point_type,channel_point_id(enabled)` After import, points are matched to routing info by `point_id`.
- Field descriptions:
  - `point_id` is the instance point ID. If the point does not exist, the routing is invalid.
  - `point_name` is the instance point name.
  - `channel_id` is the ID of the channel containing the mapped channel point. If the channel does not exist, the channel point is considered missing and an error is shown.
  - `channel_point_type` is the four-remote type of the mapped channel point (T/S/C/A). It accepts both abbreviations T, S, C, A and full names Telemetry, Signal, Control, Adjustment (case-sensitive).
  - `channel_point_id` is the channel point ID. If it does not exist, an error is shown.
  - `enabled` indicates whether the mapping is enabled; accepts `false` or `true`.
- Format screenshot:

point_id	channel_id	channel_point_type	channel_point_id	enabled
1	2	T	1	TRUE
2	2	T	2	TRUE
3	2	T	3	TRUE
4	2	T	4	TRUE
5	2	T	5	TRUE
6	2	T	6	TRUE
7	2	T	7	TRUE
8	2	T	8	TRUE
9	2	T	9	TRUE
10	2	T	10	TRUE
11	2	T	11	TRUE
12	2	T	12	TRUE
13	2	T	13	TRUE
14	2	T	14	TRUE
15	2	T	15	TRUE

Note:

- Importing routing data overwrites the current routing information.
- During import, points are matched by ID. If a point ID does not exist on the page, it is ignored. If duplicates exist, the later one is used.

## Submit All Changes

The screenshot shows the MONARCH interface for the 'Norton creek solar energy center'. The left sidebar includes links for Home, Devices, Alarm, Control, Statistics, Setting (which is selected), System Setting, User Management, and Configuration. The main area displays a 'Routings Table' with the following data:

Point ID	Point Name	Channel	Channel Point Type	Channel Point	Enabled	Operation
1	Pack Voltage	999 Does not exist	Telemetry	1 Does not exist	true	<input checked="" type="checkbox"/>

At the bottom right of the table are two buttons: 'Cancel Edit' and 'Submit'. A red arrow labeled '1' points to the 'Submit' button, another red arrow labeled '2' points to the 'Cancel Edit' button, and a third red arrow labeled '3' points to the bottom right corner of the table area.

- Before submission, ensure the modified data is valid. Errors appear below invalid data.
- Click **Submit** to submit the batch changes.
- Click **Cancel Edit** to exit edit mode and restore the original table. Note: You do not need to run a manual search. After clicking **Submit**, if issues exist you can jump directly to them.



# Rule Configuration

The screenshot shows the MONARCH web interface for rule configuration. The top navigation bar includes the system name "Norton creek solar energy center" with an "Online" status indicator, a weather forecast showing "wind 67°F~79°F", and user information for "admin". The left sidebar has a "Setting" section selected, containing "System Setting", "User Management", and "Configuration". The main content area is titled "Rules configuration" and displays a table of rules. The table columns are ID, Name, Description, Enabled, and Operation. One rule is listed: "Battery SOC Management Rule" (ID 1), which is described as "Automatic battery state of charge management with diesel generator backup and P...". The rule is enabled, and there are "Detail", "Edit", and "Delete" buttons. A "New Rule" button is located at the top right of the table area. At the bottom right, there are pagination controls showing "Total 1", "20/page", and page number "1".

ID	Name	Description	Enabled	Operation
1	Battery SOC Management Rule	Automatic battery state of charge management with diesel generator backup and P...	<input checked="" type="checkbox"/>	<a href="#">Detail</a> <a href="#">Edit</a> <a href="#">Delete</a>

This chapter includes: basic rule operations and rule flow operations.

# Rule Operations

## Add a Rule

The screenshot shows the 'Rules configuration' tab selected in the top navigation bar. A single rule is listed in the table:

ID	Name	Description	Enabled	Operation
1	Battery SOC Management Rule	Automatic battery state of charge management with diesel generator backup and P...	On	<a href="#">Detail</a> <a href="#">Edit</a> <a href="#">Delete</a>

A red arrow labeled '1' points to the '+ New Rule' button in the top right corner of the table header.

The screenshot shows the 'Rules configuration' tab selected. A modal dialog titled 'Add RuleChain' is open in the center of the screen. The dialog contains two input fields: 'Name:' with the value 'name' and 'Description:' with the value 'description'. At the bottom of the dialog are two buttons: 'Cancel' and 'Submit'. Red numbers 1, 2, 3, and 4 are overlaid on the interface to indicate steps:

- 1: Points to the '+ New Rule' button in the top right of the main table area.
- 2: Points to the 'Submit' button in the bottom right of the dialog.
- 3: Points to the 'Cancel' button in the bottom left of the dialog.
- 4: Points to the 'name' field in the dialog.

1. Click **New Rule** to open the add dialog.
2. Enter the rule name (required) and description (optional).
3. Click **Submit** to create the rule.
4. Click **Cancel** to cancel and close the dialog.

# Edit a Rule

The screenshot shows the 'Norton creek solar energy center' dashboard. On the left, a sidebar menu includes Home, Devices, Alarm, Control, Statistics, and Setting (which is selected). Under Setting, there are System Setting, User Management, and Configuration (which is also selected). In the main area, a table lists rules. The first rule, 'Battery SOC Management Rule', has its 'Edit' button highlighted with a red box and a red arrow labeled '1'. The table columns are ID, Name, Description, Enabled, Operation, Detail, Edit, and Delete.

The second screenshot shows a modal dialog titled 'Edit RuleChain'. Inside, the rule's name is 'Battery SOC Management Rule' and its description is 'Automatic battery state of charge management with diesel generator backup and PV curtailment'. There are 'Cancel' and 'Submit' buttons at the bottom. Red arrows labeled '2', '3', and '4' point to the rule name, the 'Submit' button, and the 'Cancel' button respectively.

1. Click **Edit** in the **Operation** column for the target rule to open the edit dialog.
2. Modify the rule name and description.
3. Click **Submit** to save changes.
4. Click **Cancel** to cancel and close the dialog.

# Delete a Rule

The screenshot shows the 'Rules configuration' section of the MONARCH interface. A single rule is listed:

ID	Name	Description	Enabled	Operation
1	Battery SOC Management Rule	Automatic battery state of charge management with diesel generator backup and P...	On	<a href="#">Detail</a> <a href="#">Edit</a> <a href="#">Delete</a>

A red arrow labeled '1' points to the 'Delete' button in the 'Operation' column. The 'Setting' tab in the sidebar is highlighted.

The screenshot shows the same 'Rules configuration' page after the delete operation has been initiated. A confirmation dialog box titled 'Delete Confirmation' is displayed:

Are you sure you want to delete this record?

[Cancel](#) [Confirm](#)

Red arrows labeled '2' and '3' point to the 'Confirm' and 'Cancel' buttons respectively in the dialog box. The 'Setting' tab in the sidebar is highlighted.

1. Click **Delete** in the **Operation** column for the target rule to open the confirmation dialog.
2. Click **Confirm** to delete.
3. Click **Cancel** to cancel.

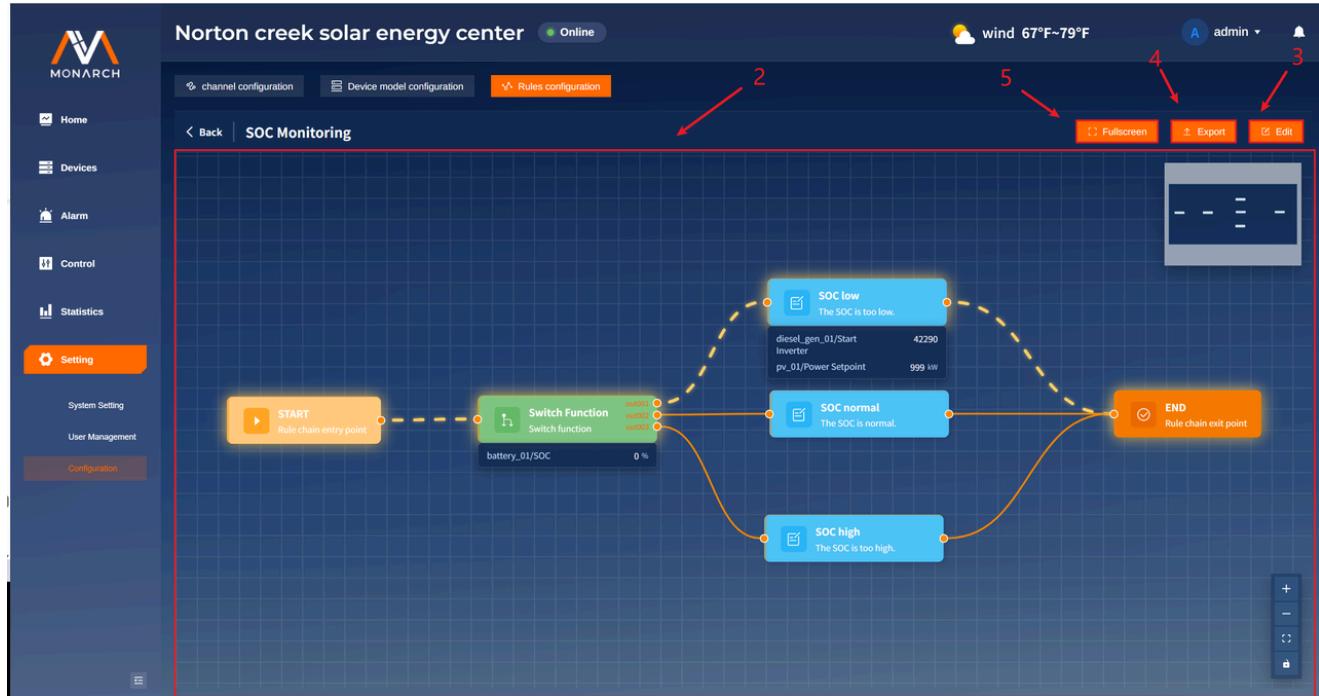
# Rule Flow Operations

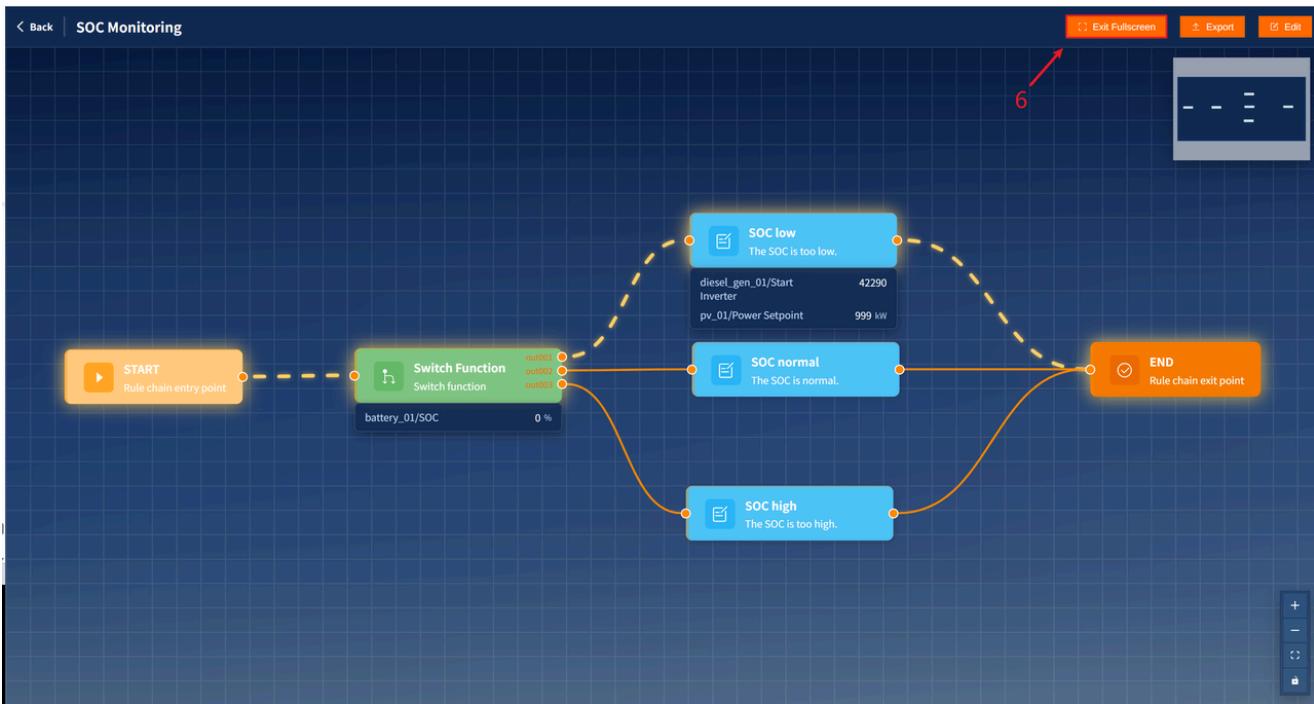
## View Rule Flow Details and Real-Time Execution Path

The screenshot shows the MONARCH platform interface for the "Norton creek solar energy center". The left sidebar includes links for Home, Devices, Alarm, Control, Statistics, and Setting (which is selected). The main content area displays a table of rules:

ID	Name	Description	Enabled	Operation
1	Battery SOC Management Rule	Automatic battery state of charge management with diesel generator backup and P...	Enabled	<a href="#">Detail</a> (highlighted with a red box)

At the top right, there are weather icons for wind (67°F-79°F) and a user admin icon. A red arrow labeled "1" points to the "Detail" button for rule ID 1.





1. Click **Detail** in the **Operation** column of the target rule row to navigate to the rule flow details page.
2. The highlighted path in the flow is the currently executed path. Node data for the current path is displayed below the node.
3. Click **Edit** to enter rule flow edit mode.
4. Click **Export** to export the current rule flow as a **.json** file. The structure is as follows:

```
{  
    "cooldown_ms": 5000, // loop interval  
    "description": "Control the diesel generators and photovoltaic systems based on the  
    "enabled": true, // enabled  
    "flow_json": { // records point and edge information  
        "edges": [ // all edges  
            {  
                "id": "edge-1766625864321", // edge id  
                "source": "start", // source node  
                "target": "node-1766625792260", // target node  
                "sourceHandle": "right", // output handle id on the source node  
                "targetHandle": "left" // input handle id on the target node  
            },  
            {  
                "id": "edge-1766627137707",  
                "source": "node-1766625792260",  
                "target": "node-1766627111063",  
                "sourceHandle": "out001",  
                "targetHandle": "left"  
            },  
            {  
                "id": "edge-1766627164179",  
                "source": "node-1766627111063",  
                "target": "end",  
                "sourceHandle": "right1",  
                "targetHandle": "left"  
            },  
            {  
                "id": "edge-1766627167317",  
                "source": "node-1766627120005",  
                "target": "end",  
                "sourceHandle": "right1",  
                "targetHandle": "left"  
            },  
            {  
                "id": "edge-1766627188300",  
                "source": "node-1766627123081",  
                "target": "end",  
                "sourceHandle": "right1",  
                "targetHandle": "left"  
            },  
            {  
                "id": "edge-1766970657249",  
                "source": "node-1766625792260",  
                "target": "node-1766625792260",  
                "sourceHandle": "right1",  
                "targetHandle": "left"  
            }  
        ]  
    }  
}
```

```
"target": "node-1766627120005",
"sourceHandle": "out002",
"targetHandle": "left"
},
{
  "id": "edge-1766970658549",
  "source": "node-1766625792260",
  "target": "node-1766627123081",
  "sourceHandle": "out003",
  "targetHandle": "left"
}
],
"nodes": [ // all nodes
{
  "id": "start", // node id
  "type": "start", // start node
  "position": { // position on canvas
    "x": -213, // x coordinate
    "y": 107 // y coordinate
  },
  "data": { // internal data
    "config": { // point config
      "wires": { // output handles and their target node ids (except for special types)
        "default": [
          "node-1766625792260"
        ]
      }
    },
    "description": "START", // node description
    "id": "start", // node id
    "label": "START", // node title
    "status": "", // node status (reserved)
    "type": "start" // node type
  }
},
{
  "id": "end",
  "type": "end", // end node
  "position": {
    "x": 629,
    "y": 101
  },
  "data": {
    "config": {
      "wires": {
        "out001": [
          "node-1766627120005"
        ],
        "out002": [
          "node-1766625792260"
        ]
      }
    }
  }
}
```

```
        "default": []
    }
},
"description": "END",
"id": "end",
"label": "END",
"status": "",
"type": "end"
}
},
{
"id": "node-1766625792260",
"type": "custom", // custom node type
"position": {
  "x": 25,
  "y": 106
},
"data": {
  "cardId": "function-2",
  "config": { // function-switch node, used for conditions
    "rule": [ // output handles and rule conditions
      {
        "name": "out001", // output handle name, matches wires
        "rule": [ // rules
          {
            "operator": "<=", // operator
            "type": "variable", // type for this rule
            "value": 5, // value
            "variables": "X1" // variable name, matches the variables definition
          }
        ],
        "type": "default" // reserved
      },
      {
        "name": "out002",
        "type": "default",
        "rule": [
          {
            "type": "variable",
            "variables": "X1",
            "operator": ">=",
            "value": 49
          },
          {
            "type": "relation", // relation operator to combine rules

```

```

        "value": "And" // logical operator
    },
    {
        "type": "variable",
        "variables": "X1",
        "value": 99,
        "operator": "<"
    }
],
},
{
    "name": "out003",
    "type": "default",
    "rule": [
        {
            "type": "variable",
            "variables": "X1",
            "operator": ">",
            "value": 99
        }
    ]
},
],
"variables": [ // parameter definitions
{
    "instance_id": 1, // instance id for the point
    "instance_name": "battery_01", // instance name for the point
    "name": "X1", // default name used in rules
    "pointType": "measurement", // point type
    "point_name": "SOC", // point name
    "type": "single", // parameter type: single or combined
    "unit": "%", // unit
    "point_id": 3, // point id
    "formula": [] // when combined, records formula definition
}
],
"wires": { // for function-switch, multiple outputs map to next node ids
    "out001": [
        "node-1766627111063"
    ],
    "out002": [
        "node-1766627120005"
    ],
    "out003": [
        "node-1766627123081"
    ]
}
]
```

```
        ],
      },
    },
    "description": "Switch function",
    "id": "node-1766625792260",
    "label": "Switch Function",
    "type": "function-switch",
    "status": ""
  },
},
{
  "id": "node-1766627111063",
  "type": "custom",
  "position": {
    "x": 300,
    "y": -5
  },
  "data": {
    "cardId": "action-1",
    "config": {
      "rule": [ // rule config
        {
          "Variables": "X1", // defined variable
          "value": 42290 // assigned value
        },
        {
          "Variables": "X2",
          "value": 999
        }
      ],
      "variables": [
        {
          "formula": [],
          "instance_id": 2,
          "instance_name": "diesel_gen_01",
          "name": "X1",
          "pointType": "action",
          "point_id": 1,
          "point_name": "Start Inverter",
          "type": "single",
          "unit": ""
        },
        {
          "name": "X2",
          "type": "single",
        }
      ]
    }
  }
}
```

```
        "instance_id": 4,
        "instance_name": "pv_01",
        "pointType": "action",
        "point_id": 5,
        "point_name": "Power Setpoint",
        "unit": "kW",
        "formula": []
    }
],
"wires": {
    "default": [
        "end"
    ]
},
},
"description": "The SOC is too low.",
"id": "node-1766627111063",
"label": "SOC low",
"type": "action-changeValue", // this node type can execute actions or change p
"status": ""
}
},
{
"id": "node-1766627120005",
"type": "custom",
"position": {
    "x": 302,
    "y": 101
},
"data": {
    "cardId": "action-1",
    "config": {
        "rule": [
            {
                "Variables": "X1",
                "value": 42289
            },
            {
                "Variables": "X2",
                "value": 999
            }
        ],
        "variables": [
            {
                "name": "X1",
                "value": 42289
            },
            {
                "name": "X2",
                "value": 999
            }
        ]
    }
}
```

```
        "type": "single",
        "instance_id": 2,
        "instance_name": "diesel_gen_01",
        "pointType": "action",
        "point_id": 1,
        "point_name": "Start Inverter",
        "unit": "",
        "formula": []
    },
    {
        "name": "X2",
        "type": "single",
        "instance_id": 4,
        "instance_name": "pv_01",
        "pointType": "action",
        "point_id": 5,
        "point_name": "Power Setpoint",
        "unit": "kW",
        "formula": []
    }
],
"wires": {
    "default": [
        "end"
    ]
},
},
"description": "The SOC is normal.",
"id": "node-1766627120005",
"label": "SOC normal",
"type": "action-changeValue",
"status": ""
},
},
{
"id": "node-1766627123081",
"type": "custom",
"position": {
    "x": 297,
    "y": 219
},
"data": {
    "cardId": "action-1",
    "config": {
        "rule": [

```

```
{
    "Variables": "X1",
    "value": "X2"
}
],
"variables": [
{
    "name": "X1",
    "type": "single",
    "instance_id": 4,
    "instance_name": "pv_01",
    "pointType": "action",
    "point_id": 5,
    "point_name": "Power Setpoint",
    "unit": "kW",
    "formula": []
},
{
    "name": "X2",
    "type": "single",
    "instance_id": 3,
    "instance_name": "pcs_01",
    "pointType": "measurement",
    "point_id": 2,
    "point_name": "DC Power",
    "unit": "kW",
    "formula": []
}
],
"wires": {
    "default": [
        "end"
    ]
},
"description": "The SOC is too high.",
"id": "node-1766627123081",
"label": "SOC high",
"type": "action-changeValue",
"status": ""
}
}
]
},
"format": "vue-flow",
```

```
"id": "1", // rule id  
"name": "SOC Monitoring", // rule name  
"priority": 10 // priority  
}
```

5. Click **FullScreen** to enter full-screen mode.

6. Click **Exit Fullscreen** to exit.

## Edit Rule Flow

1. Click **Edit** to enter rule flow edit mode.

2. The cards below are custom function cards. Drag the required card onto the rule flow canvas. Different cards have different functions:

- **Switch Function - Value condition card**

This card is used to judge whether a point value meets a condition.

- **Change Value - Data modification card**

This card is used to modify a point value for an instance.

3. The rule flow canvas is where you configure cards and connections. Basic operations:

- The canvas must include **Start** and **End** cards. **The rule flow must start with Start and end with End.**
- The left handles on a card are inputs and can only be line endpoints; the right handles are outputs and can only be line starting points.
- To delete, click a card or line and press **Backspace**. **Start and End cards cannot be deleted.**
- Double-click a card to configure its parameters. Different card types have different data to edit:
  - **Switch Function - Value condition card**

1. The first section is basic info: **label** is the card title, and **description** is the card description.

2. The second section is parameter definition, where you declare parameters:

Click the add button to create a parameter. Each parameter is named **X + auto-increment number**. Click the delete icon next to a parameter to remove it.

Parameter definitions have two types: **single** and **combined**:

- **single**: a single parameter. Select instance name, point type, and point name.
- **combined**: a composite parameter. You can select existing parameters or enter numbers and combine them with operators `+ , - , * , /`. Click the **green add icon** to add a calculation row, and click the **red delete icon** to remove a row.

3. The third section is rule definition, where you define conditions:

Click the **orange add icon** to add a rule. Each rule is named **out + auto-increment number**. Click the **delete icon** next to a rule to remove it.

Based on parameter names defined above, you can compare parameters to other parameters or values. Click the green add icon to add an extra condition line and combine conditions (currently only **And** is supported, meaning both must be satisfied). Click the red delete button on a condition line to remove it.

Note: Each complete **out+xxx** rule generates a corresponding output handle on the node card. Only when the condition is satisfied will the flow proceed to the next node connected to that handle.

- **Change Value - Data modification card**

1. The first section is basic info: **label** is the card title, and **description** is the card description.

2. The second section is parameter definition, the same as in **Switch Function**.

3. The third section is change-rule definition, where you modify instance point parameters.

Click the **orange add icon** to add a change rule. Click the **delete icon** next to a rule to remove it. The modification rule uses left and right parameters: the left side is the target parameter to change; the right side is the new value or parameter. The left selector can only choose **single** parameters; the right selector can choose any defined parameter or a custom value.

4. Canvas controls from top to bottom: zoom in, zoom out, fit to canvas, disable/enable canvas interactions.

5. Rule flow save button. Save is enabled only when nodes/edges are added, modified, or deleted.
6. Rule flow cancel button. Cancel is enabled only when nodes/edges are added, modified, or deleted; it restores the last saved state.
7. **Fullscreen** button to enter full-screen edit mode.
8. **Import** button. Select a .json file to import a rule flow; **the .json format must match the exported format.**
9. **Cancel Edit** button to exit edit mode.

# FAQ and Troubleshooting

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## The page has no data and device Update Time does not change

Please check in order:

1. Refresh the page (F5)
2. Switch to another menu and switch back
3. Check whether the top bar can jump to the alarm page (verifies base routing)
4. Ask the administrator to check:
  - Whether the backend service is normal
  - Whether the WebSocket push source is normal
  - Whether devices/channels are online

It is recommended to provide the administrator with:

- The page where the issue occurs (e.g., Devices > PV > Value Monitoring)
  - The time the issue occurred
  - Whether all devices have no data or only a specific type has no data
- 

## After logging in, you are redirected back to the login page

Possible causes:

- Account expired or password incorrect
- Token refresh failed Suggestions:
  - Log in again

- If it still fails, contact the administrator to reset the account