Climsoft Web User Guide

User guide contents

Introduction

Climsoft Web is a web-based platform designed for managing climate observation data. This guide outlines the main modules and functionalities available to users after logging in, depending on their permissions.

Installation & Configuration

Climsoft Web is designed to be installed on a web-accessible Linux server (on premises) or a cloud-based virtual machine. The installation and configuration process is essentially the same for each kind of server. Please check with your local ICT team for the relevant details you'll need to access, IP addresses, etc.

Install Docker Engine and Docker Compose Plugin

Download and install Docker from the official website:
https://docs.docker.com/get-docker/

Download and install Docker Compose plugin from the official website:

https://docs.docker.com/compose/install/

Enable Docker Engine on Boot

Check if Docker starts automatically:
sudo systemctl is-enabled docker

If not enabled, run:
sudo systemctl enable docker

Update System and Install Tools

Update your package list:
sudo apt update

Install the required tools:
sudo apt install wget
sudo apt install nano

Download Climsoft Web Setup Files

Download the Docker Compose file:
sudo wget "https://github.com/climsoft/climsoft-web/releases/download/preview-2.0.4/docker-compose.prod.yaml" -O "docker-compose-204.prod.yaml"

Download the environment configuration file:
sudo wget "https://github.com/climsoft/climsoft-web/releases/download/preview-2.0.4/default.env" -O ".env"

Verify the downloaded files:
sudo ls -la

Configure Environment Variables

The `.env` file contains important configuration settings for Climsoft Web. These allow you to define network details, database credentials, and integration options for connecting with Climsoft version 4 databases.

Climsoft PWA and API Web Settings:
- HOST_IP_ADDRESS: IP address used by the Climsoft Progressive Web App (PWA). Use 'use_document_location' to auto-detect.
- HOST_HTTP_PORT: Port number used by the reverse proxy (default 8080).
- FIRST_INSTALL: Set to 'yes' for first installation; change to 'no' after setup.

Climsoft Web Database Credentials:
- DB_NAME: Name of the Climsoft database.
- DB_PASSWORD: Password for the Climsoft database user.

Climsoft V4 Database Credentials:
- V4_SAVE: 'yes' to save data to Climsoft V4.
- V4_IMPORT: 'yes' to import data from Climsoft V4.
- V4_DB_HOST: Host address of the Climsoft V4 database.
- V4_DB_PORT: Port number (default 3306 for MariaDB/MySQL).
- V4_DB_NAME: Name of the Climsoft V4 database.
- V4_DB_USERNAME: Username for Climsoft V4 database.
- V4_DB_PASSWORD: Password for Climsoft V4 database user.
- V4_DB_UTCOFFSET: Time offset in hours from UTC.

Edit these values in `.env` to match your setup, then save changes before starting Climsoft Web.

You can use Nano:
sudo nano .env

Then in Nano:
- Press CTRL + O to save
- Press ENTER to confirm
- Press CTRL + X to exit

Start Climsoft Web

To start Climsoft web, run:
sudo docker compose -f docker-compose-204.prod.yaml up

Access the Web Interface

Open a browser and go to:
http://<ip-address>:<port>

Default login credentials:
Username: admin@climsoft.org
Password: climsoft@admin!2

Stop Climsoft Web

To stop the services, run:
sudo docker compose -f docker-compose-204.prod.yaml down

Updating Climsoft Web

Download the Docker Compose file of the new release:
sudo wget "https://github.com/climsoft/climsoft-web/releases/download/preview-2.0.4/docker-compose.prod.yaml" -O "docker-compose-204.prod.yaml"

Stop/shutdown the current installed Climsoft Web release:
sudo docker compose -f docker-compose-204.prod.yaml down

Start the new Climsoft web release using the new downloaded docker compose file:
sudo docker compose -f docker-compose-204.prod.yaml up

Main Interface Overview

Upon successful login, the main interface includes:

- Main Menu (left side): Navigation links to different modules based on user permissions.

- Content Area (right side): Displays pages related to the selected module.

Main Menu Modules:

- Dashboard: System notifications and alerts

- Data Ingestion: Tools for entering, importing, correcting, and managing data.

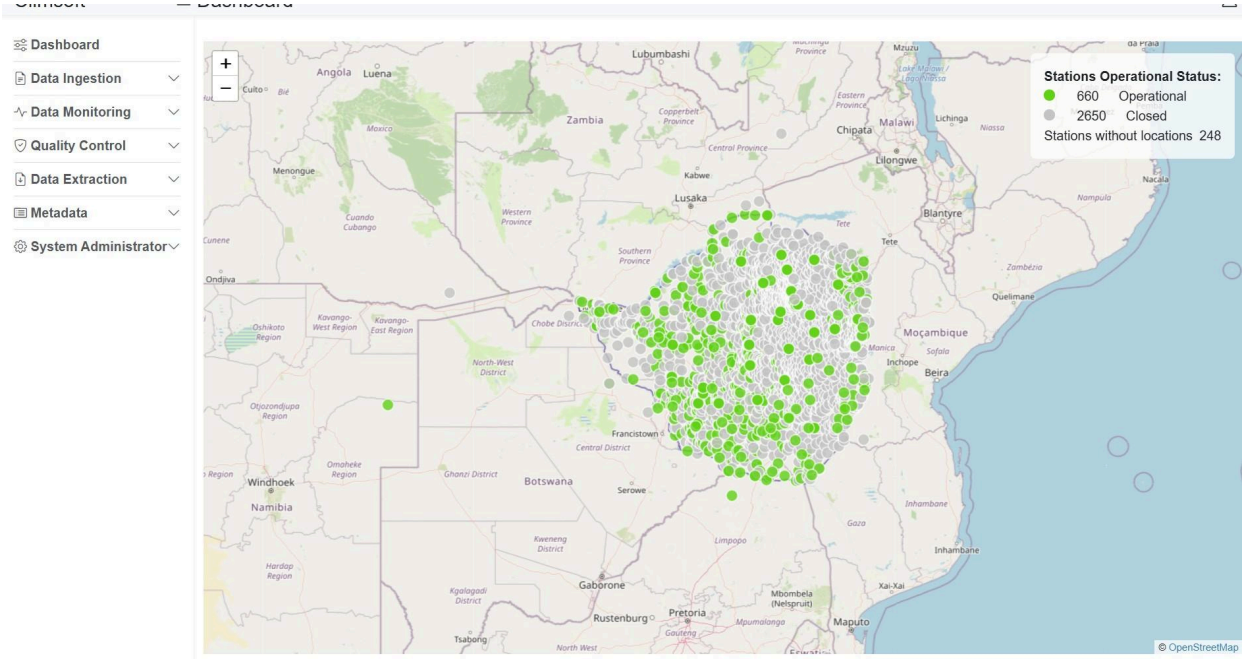
- Data Monitoring: Real-time and historical status of station data.

- Quality Control: Automated and manual tools for validating data.

- Data Extraction: Export data based on defined templates.

- Metadata: Management of metadata used for observation processing.

- System Administrator: System-level configurations and access management.



Data Ingestion

This module includes the following features:

- Data Entry: Manual data entry using pre-defined forms.

- Manual Import: Import digitized data using administrator-defined templates.

- Scheduled Import: Automatically import data on a defined schedule.

- Data Correction: Review and edit existing records; includes soft deletion.

- Deleted Data: View, restore, or permanently delete soft-deleted data.

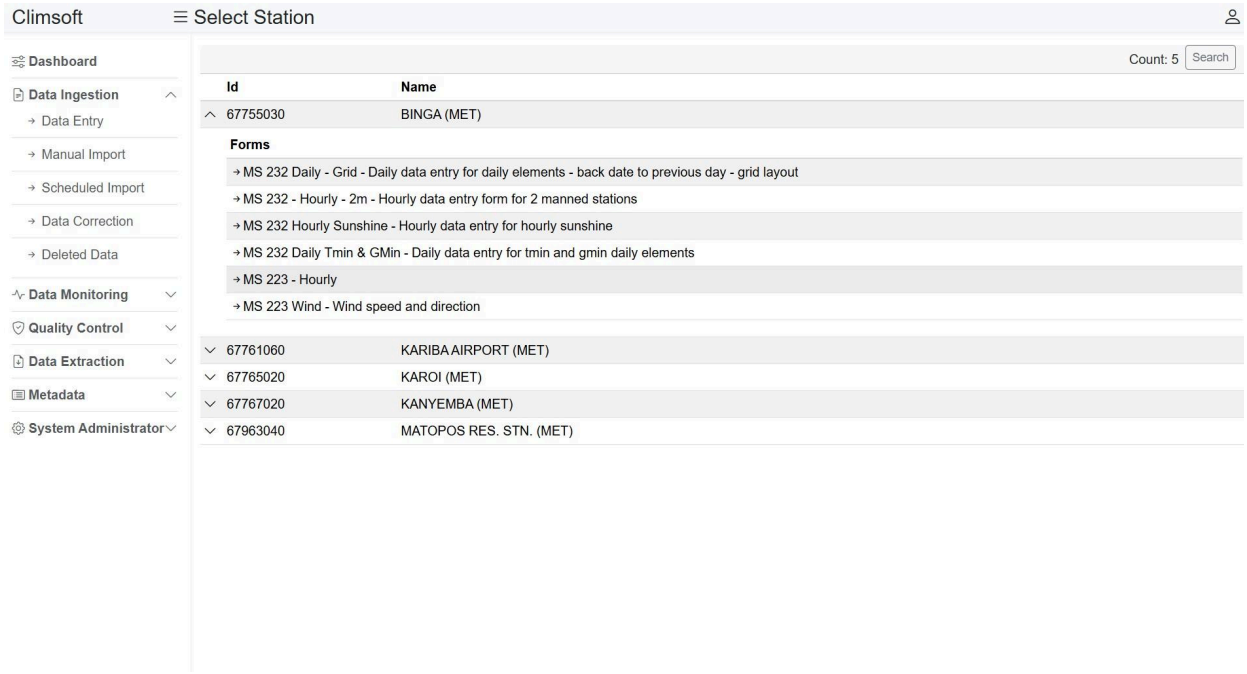
Data Entry

To start:

1. Navigate to `Data Ingestion > Data Entry`

2. Select a station (must be manual or hybrid).

3. Select a form allocated to the station.



Form Layout:

- Title: Displays station and form name.

- Selectors: Inputs like date, hour, or element.

- Fields: Where data is entered. Can be grid or linear layout.

Field Behavior:

- Green: Passed quality control.

- Yellow: Failed QC but still allowed (warning).

- Red: Invalid entry (not saved).

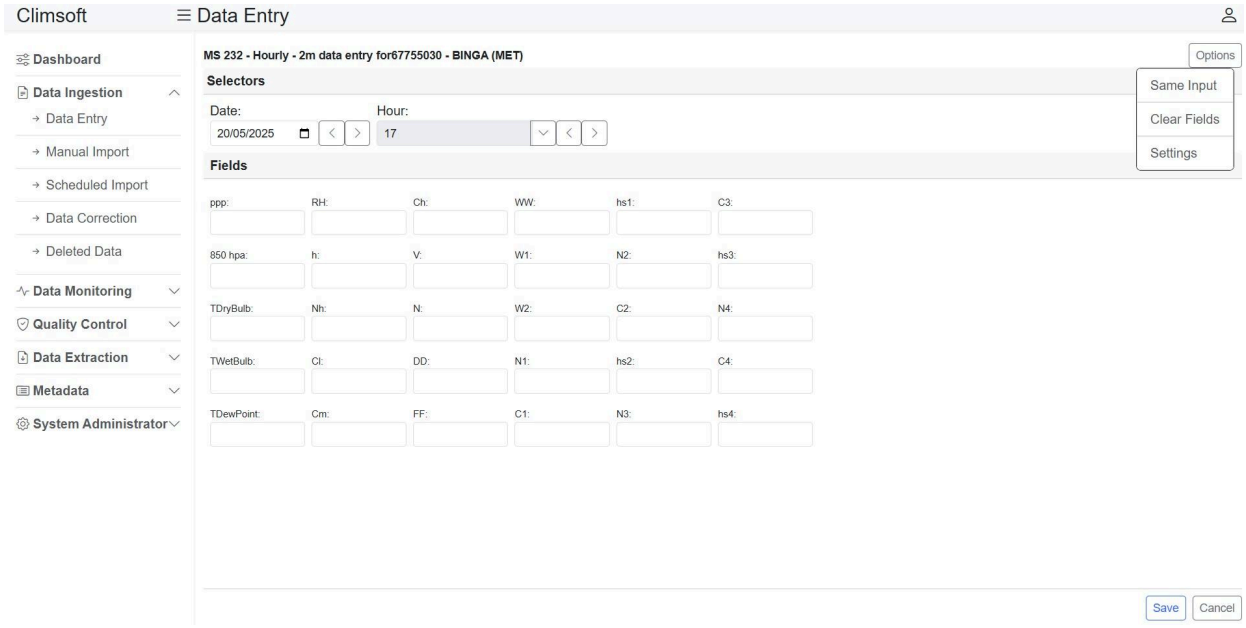
Clicking on a red/yellow field opens a dialog explaining the issue.

Saving: Click `Save` to commit valid entries. Partial entry is allowed.

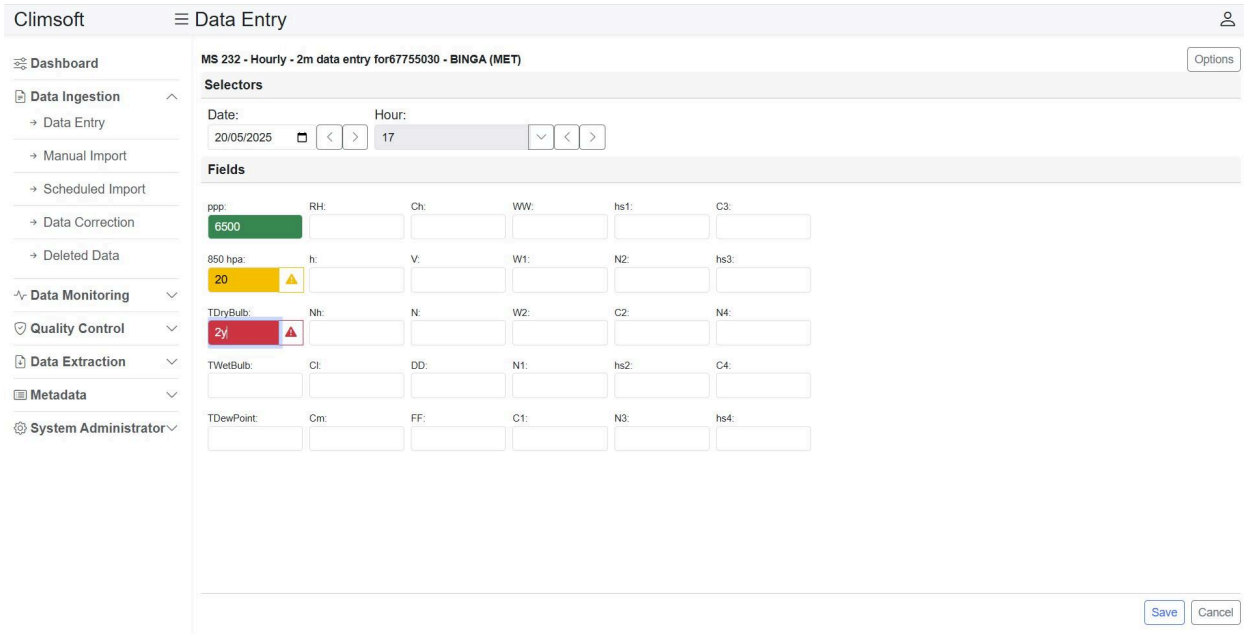
Flags:

- M - Missing
- T - Trace
- C - Cumulative
- E - Estimate
- D - Dubious
- O - Obscure
- V - Variable

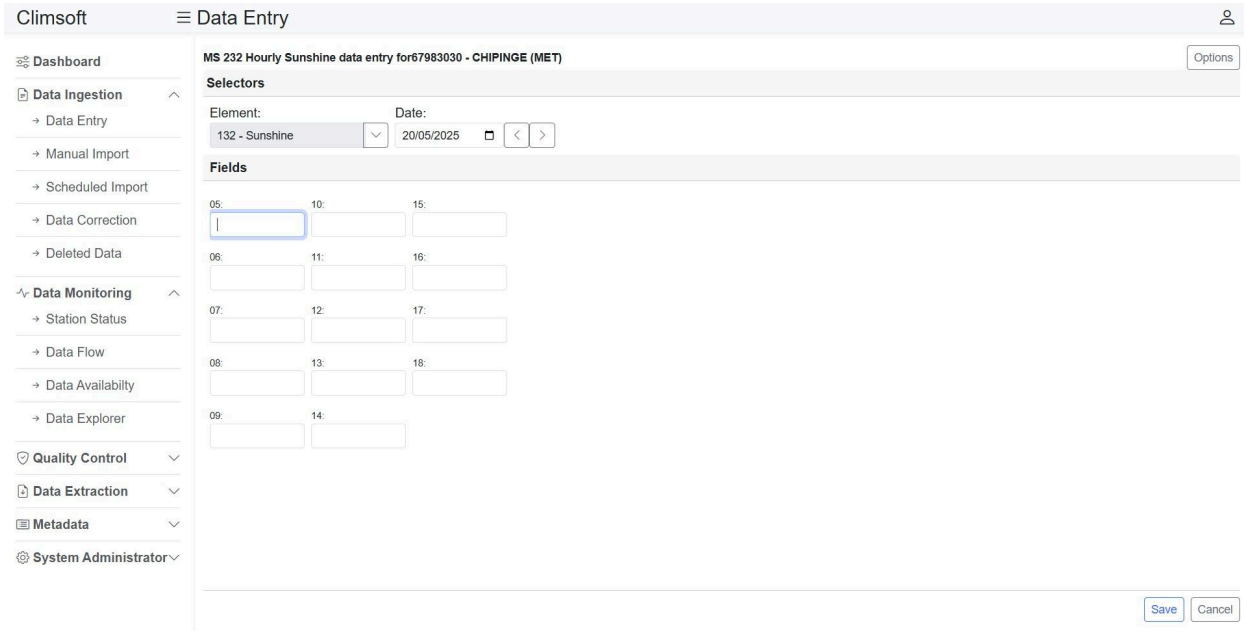
Blank Form



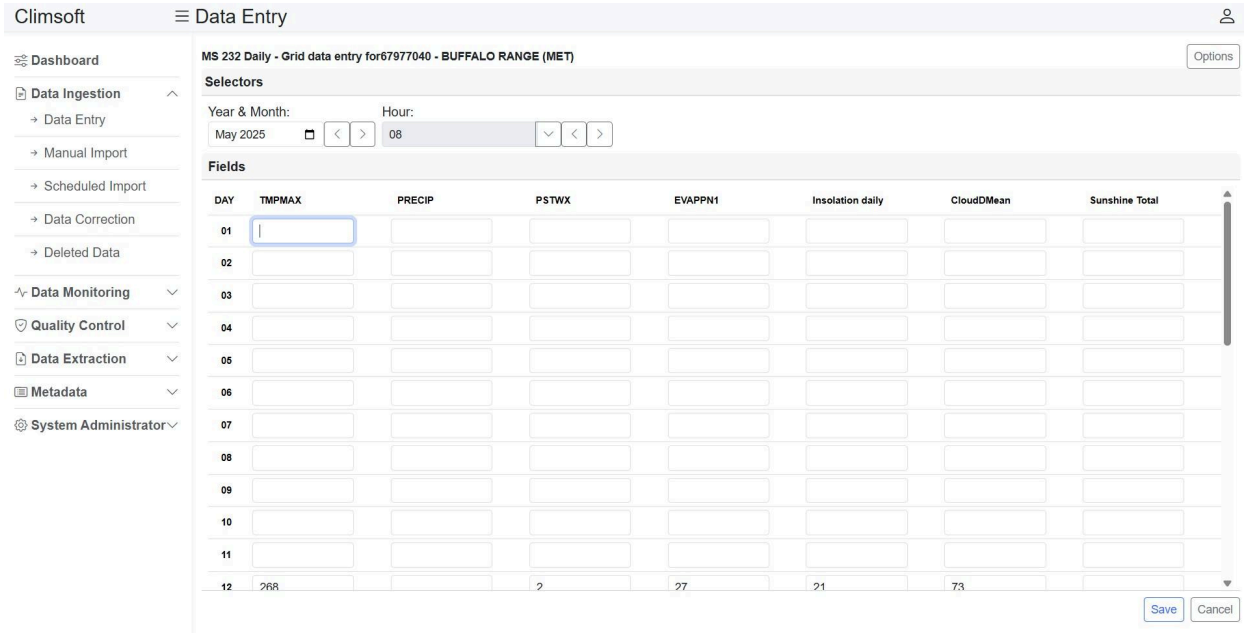
Form with warnings and errors



A blank form with hours as fields



A form with grid layout.



Manual import

Waiting documentation…

Scheduled import (future function)

Scheduled Imports will be supported in the next version release.

Scheduled Imports will allow monitoring of automatic imports done through connectors from other applications.

Data Correction

Used to explore, correct, or soft-delete data entries.

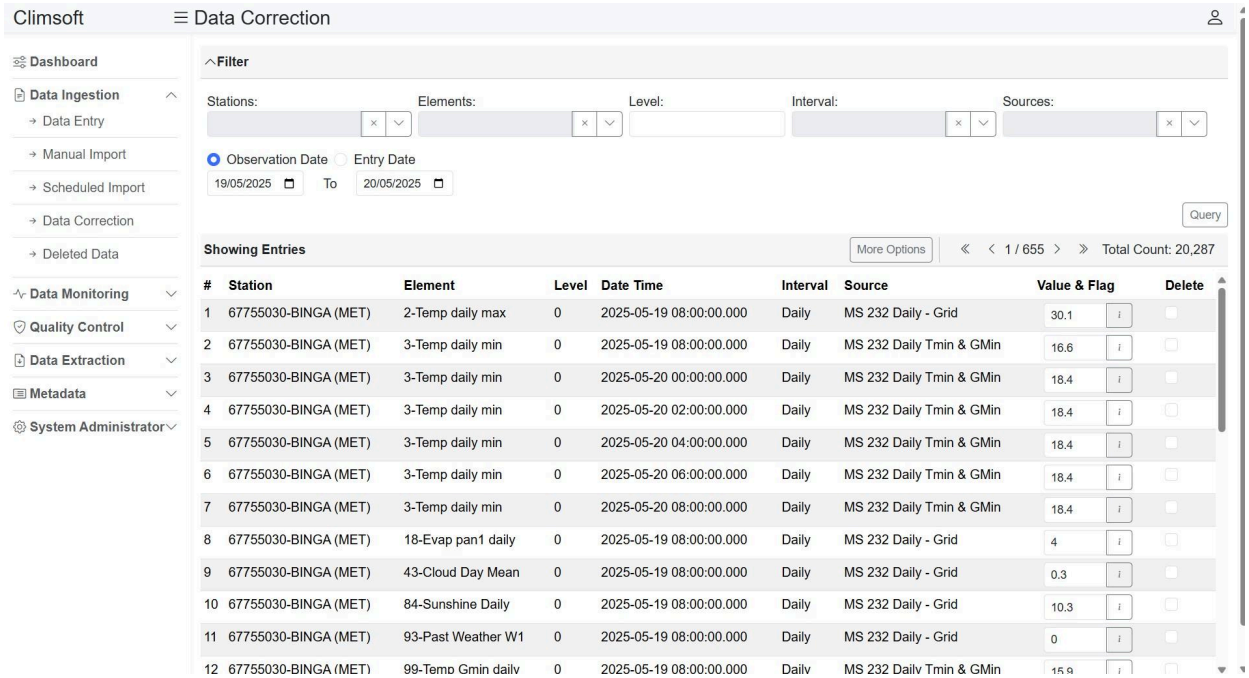
1. Go to `Data Ingestion > Data Correction`

2. Use the **Filter** section to define your query.

3. Click `Query` to view results.

4. Use the **Entries** section to:

- Edit values
- Delete records
- Navigate paginated results



Deleted Data

Used to explore, restore, or hard-delete data entries.

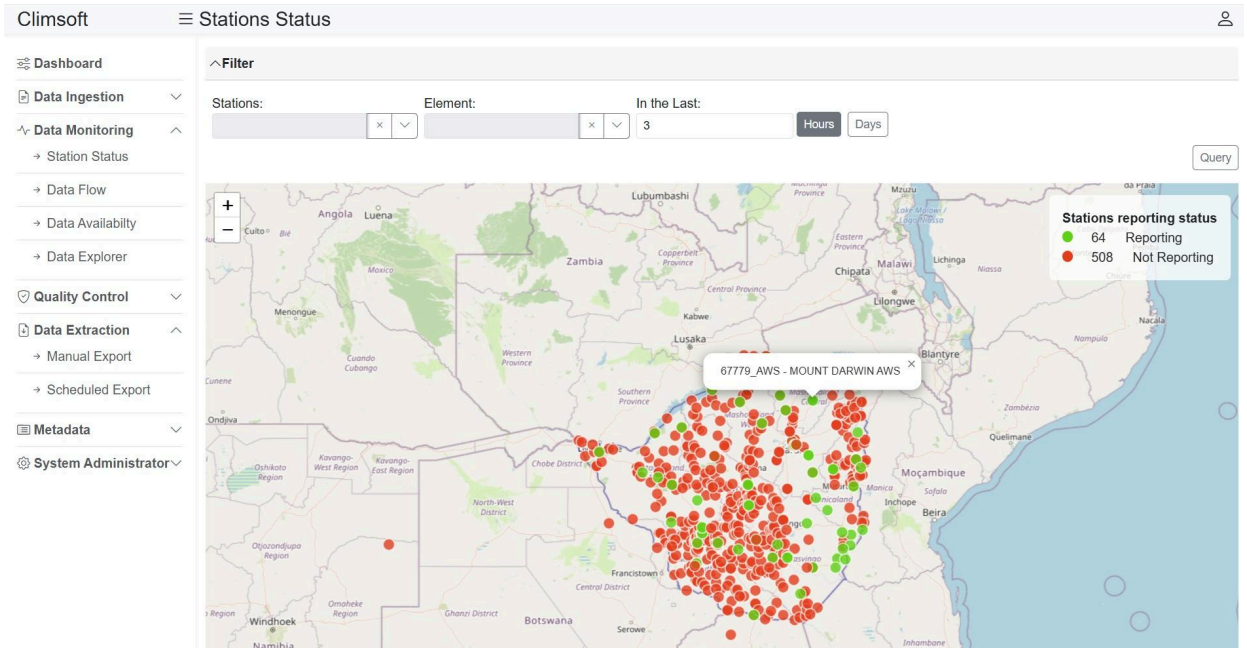
Data Monitoring

Tracks station data flow and availability.

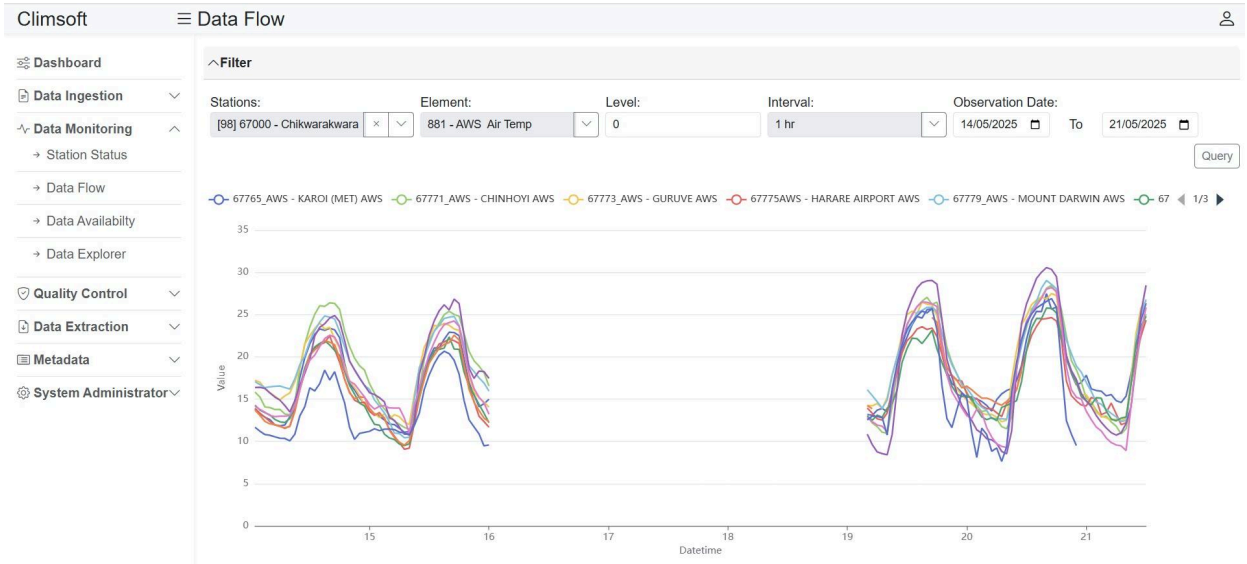
Features:

- Station Status: Map showing stations as green (reporting) or red (not reporting).
- Data Flow: View detailed data transmission by selecting station, element, and interval.
- Data Availability: Summary of data availability by element/station over time.
- Data Explorer: Visual tool for exploring raw observation data.

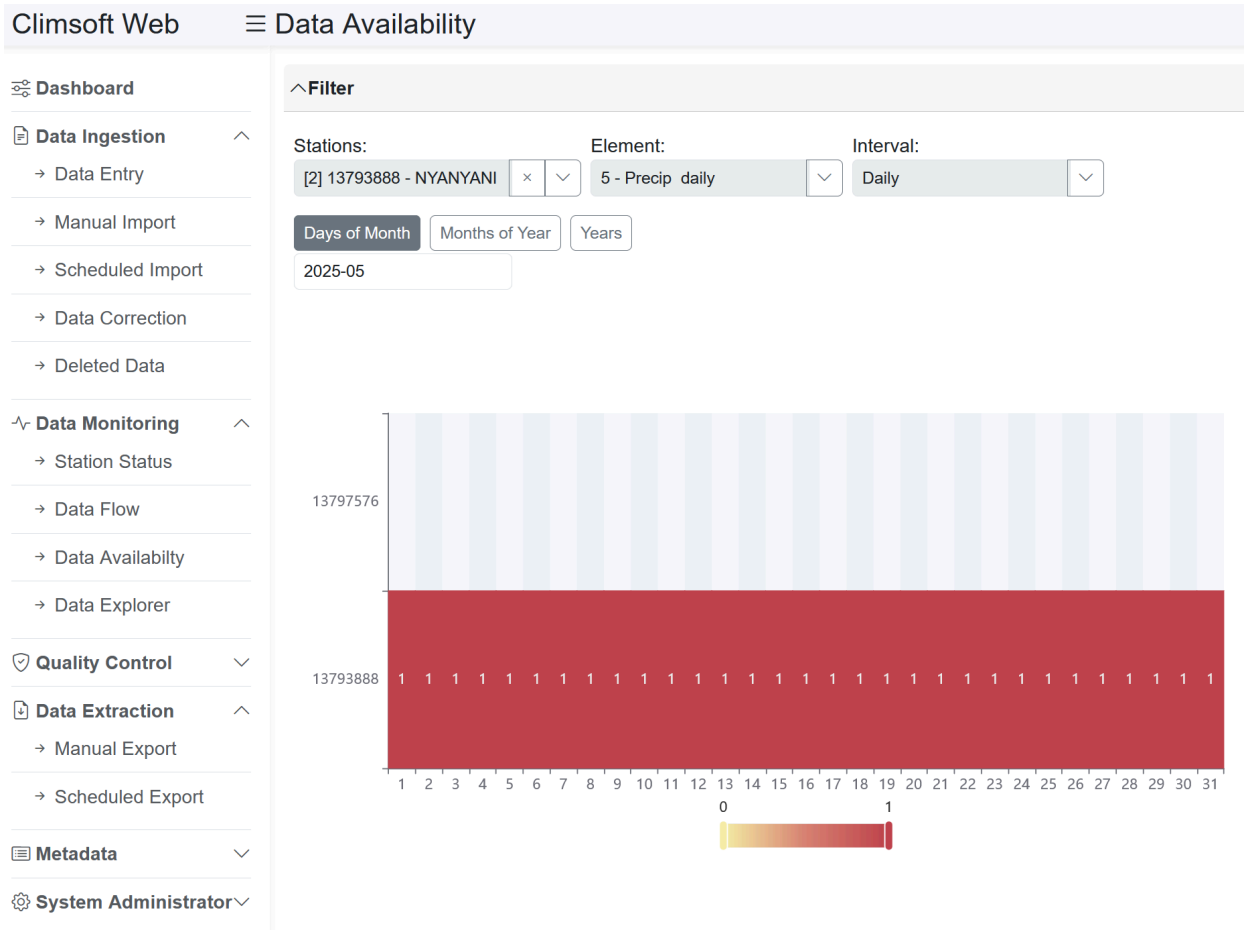
Station Status


Climsoft
Stations Status
Dashboard
Data Ingestion
Data Monitoring
Station Status
Data Flow
Data Availabilty
Data Explorer
Quality Control
Data Extraction
Manual Export
Scheduled Export
Metadata
System Administrator
Filter
Stations:
Element:
In the Last:
3
Hours
Days
Query
67779_AWS - MOUNT DARWIN AWS
Stations reporting status
64 Reporting
508 Not Reporting

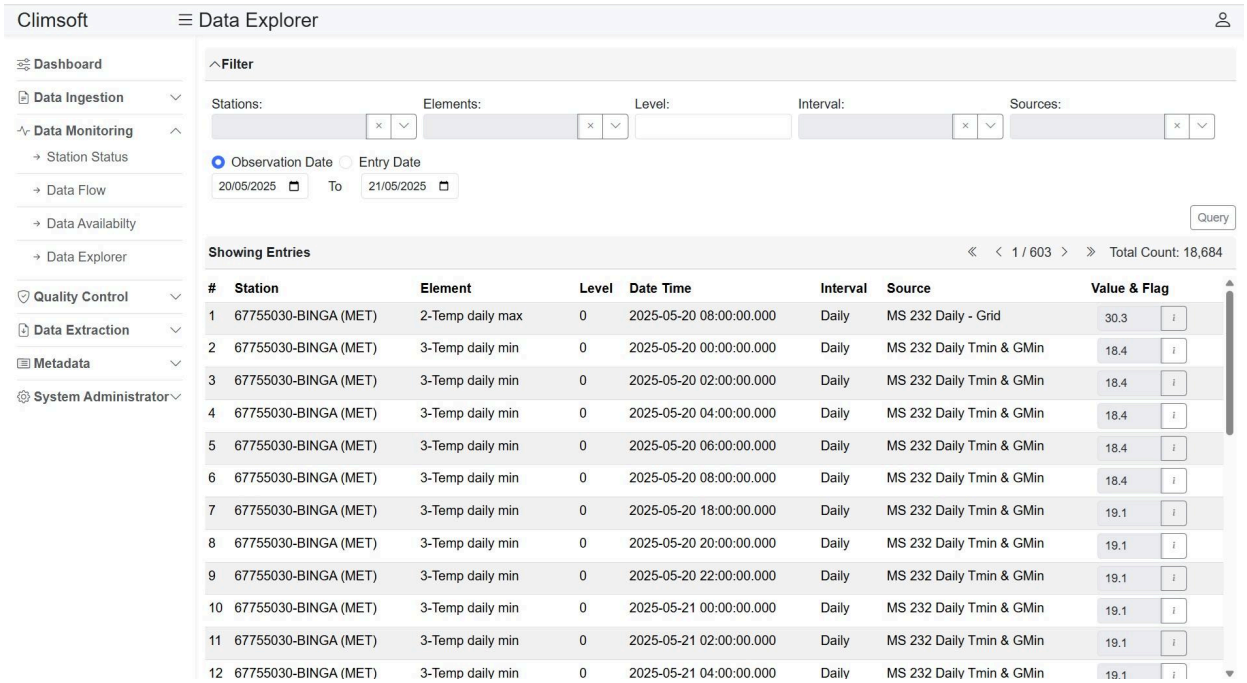
Data Flow


Climsoft
Data Flow
Dashboard
Data Ingestion
Data Monitoring
Station Status
Data Flow
Data Availabilty
Data Explorer
Quality Control
Data Extraction
Metadata
System Administrator
Filter
Stations:
[98] 67000 - Chikwarakwara
Element:
881 - AWS Air Temp
Level:
0
Interval:
1 hr
Observation Date:
14/05/2025
To
21/05/2025
Query
67765_AWS - KAROI (MET) AWS
67771_AWS - CHINHOYI AWS
67773_AWS - GURUVE AWS
67775AWS - HARARE AIRPORT AWS
67779_AWS - MOUNT DARWIN AWS
Value
Datetime

Data Availability



Data Explorer



Data Quality Control

Station data held in Climsoft can be quality controlled directly within the system.

Two functions support this process within Climsoft:

1. Source check
2. Quality control tests

Further quality control procedures and advanced checks can be implemented using external tools such as R-Instat.

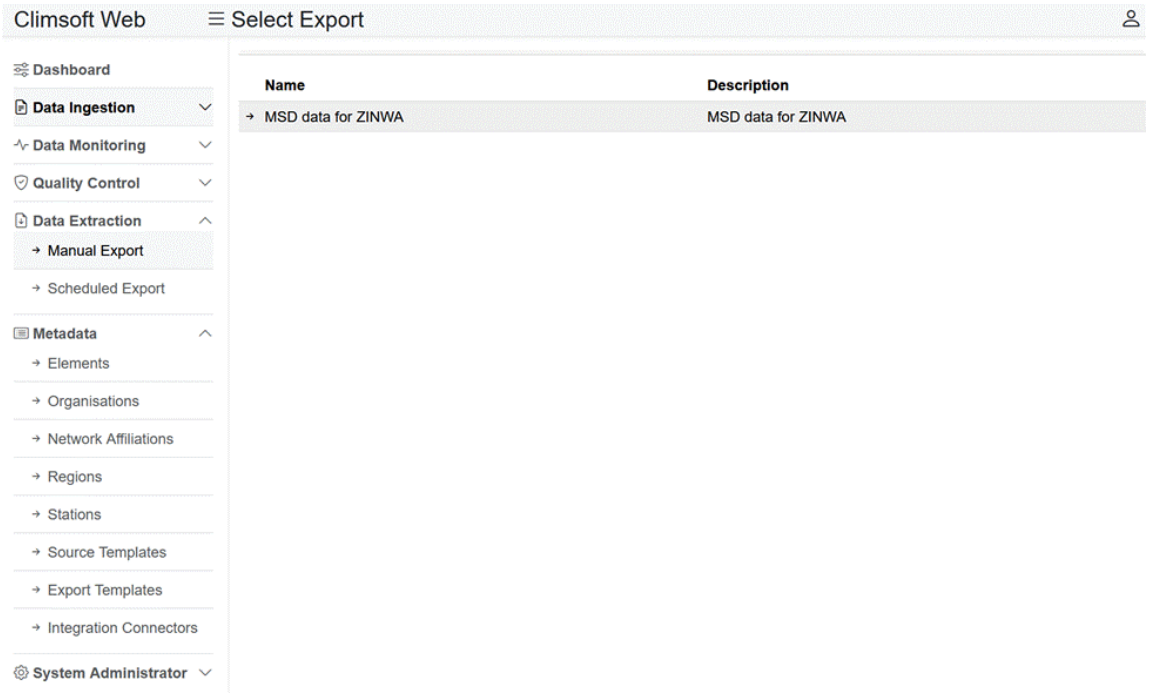
Data Export for transfer and sharing

Station data held in Climsoft can be exported for use by other stakeholders and in other applications, e.g. modelling software, data analysis, etc.

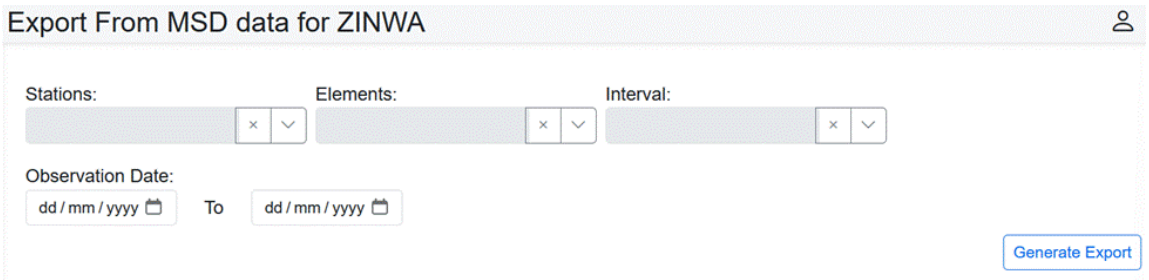
Two functions support this process within Climsoft:

1. Manual extraction

To export data via the web interface, select **Data Extraction** in the main menu and then **Manual Export**. This displays a list of defined export templates defined by the System Administrator. The export template “MSD data for ZINWA” is defined below:

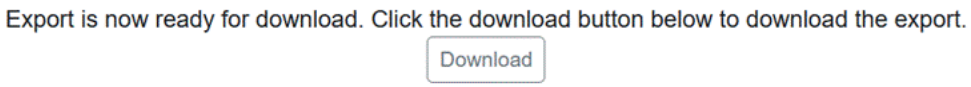


Selecting a template name displays the options and filters that can be configured for each manual export:



If all the options and filters are left blank/not set, then all the available data in the system will be exported. To select a specific subset of data for export, select the required stations, elements, intervals and date using the controls. Then click the Generate Export button.

If the selections are valid, a file to download will be prepared:



Click the Download button to save the exported CSV file to a local device.

2. Scheduled extraction (future function)

Scheduled Exports will be supported in the next version release

Scheduled exports will allow monitoring of automatic exports which use connectors for transmitting data to other destinations

Metadata Management

Defines metadata used throughout the system.

Features:

- Elements: Define climate variables.
- Organisations: Define station ownership.
- Network Affiliations: Categorize stations by network.
- Regions: Assign stations to geographic or administrative regions.
- Stations: Core configuration and classification of data stations.
- Source Templates: Define input templates for forms and imports.
- Export Templates: Define how data is extracted.
- Integration Connectors: Configure automated data sources or targets.

Working with Elements:

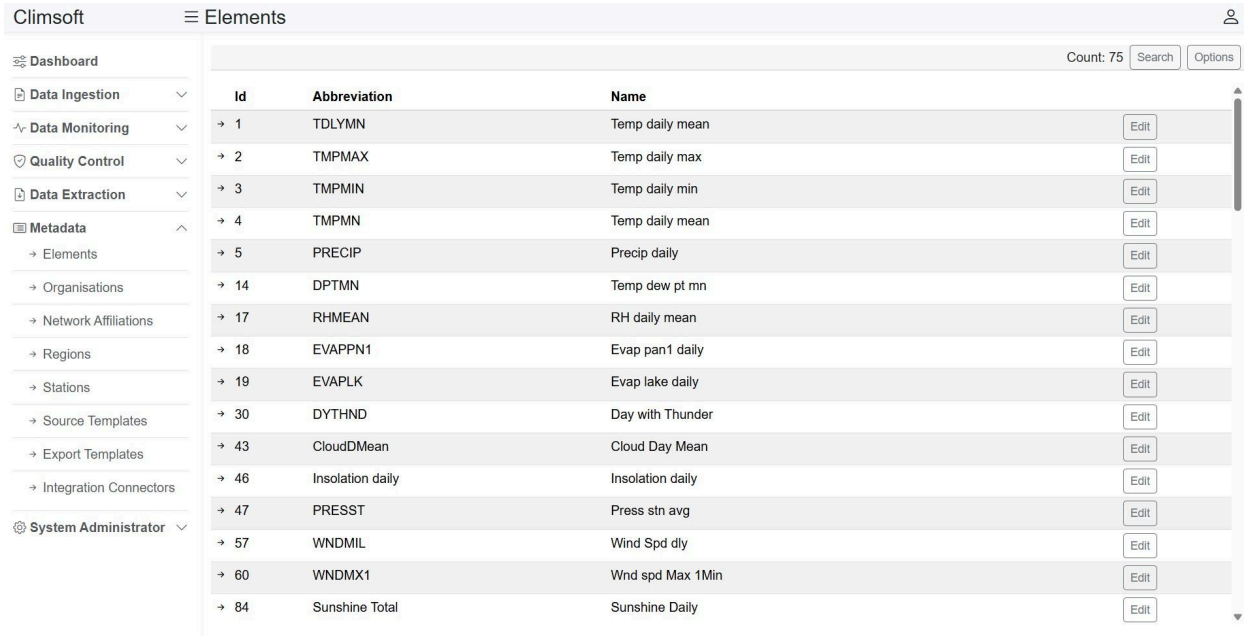
1. Navigate to `Metadata > Elements`

2. Click an element row to view details.

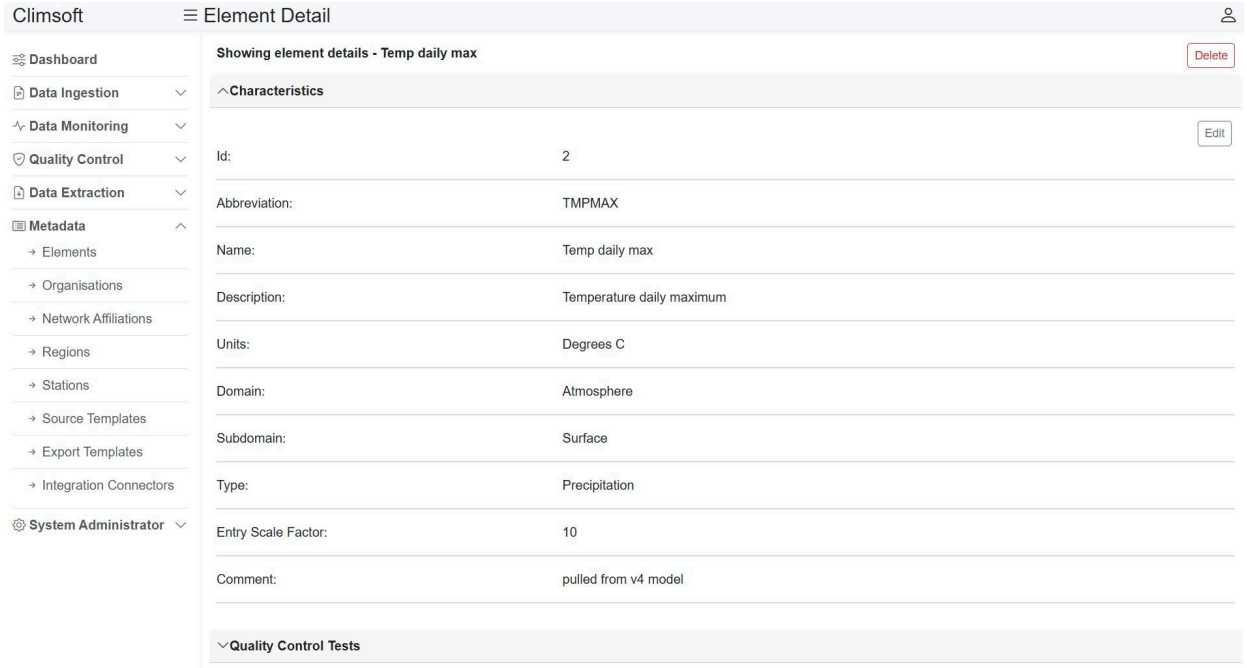
- Characteristics: Editable attributes.

- Quality Control Tests: Add or edit QC tests linked to the element.

Viewing Elements



Showing element characteristics



Working with Stations:

View as:

- Table: Grid layout for quick edits.
- Geo Map: Stations shown on a map.

- Tree Map: Classification view by region, organisation, or network.

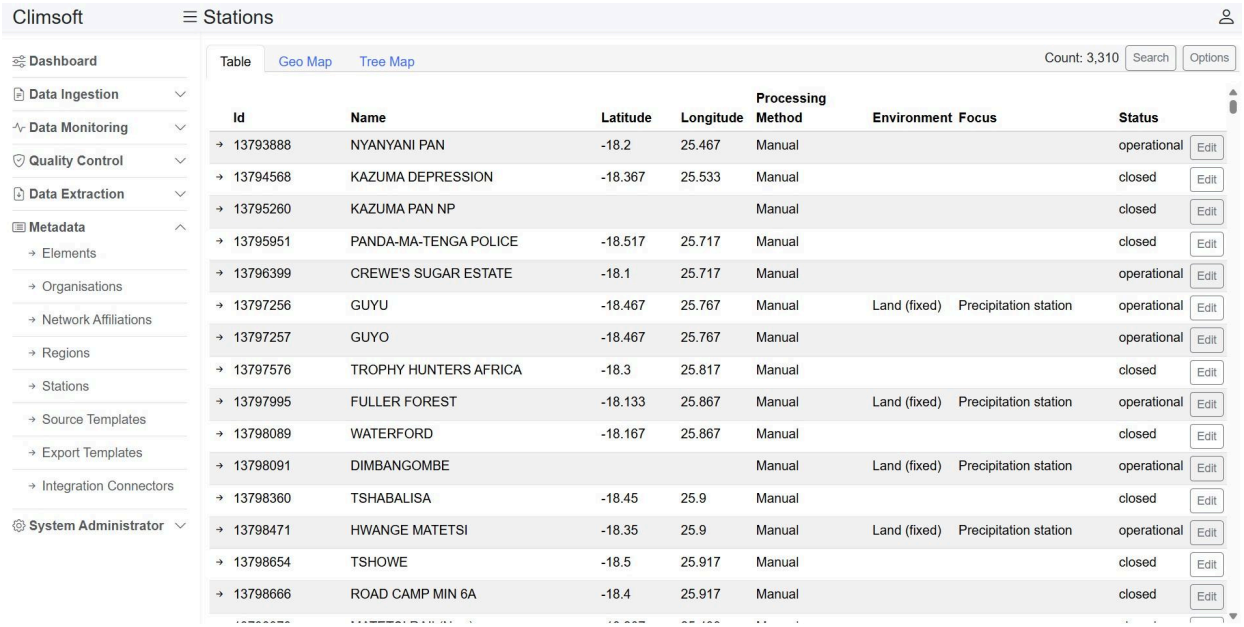
To edit:

1. Go to `Metadata > Stations`

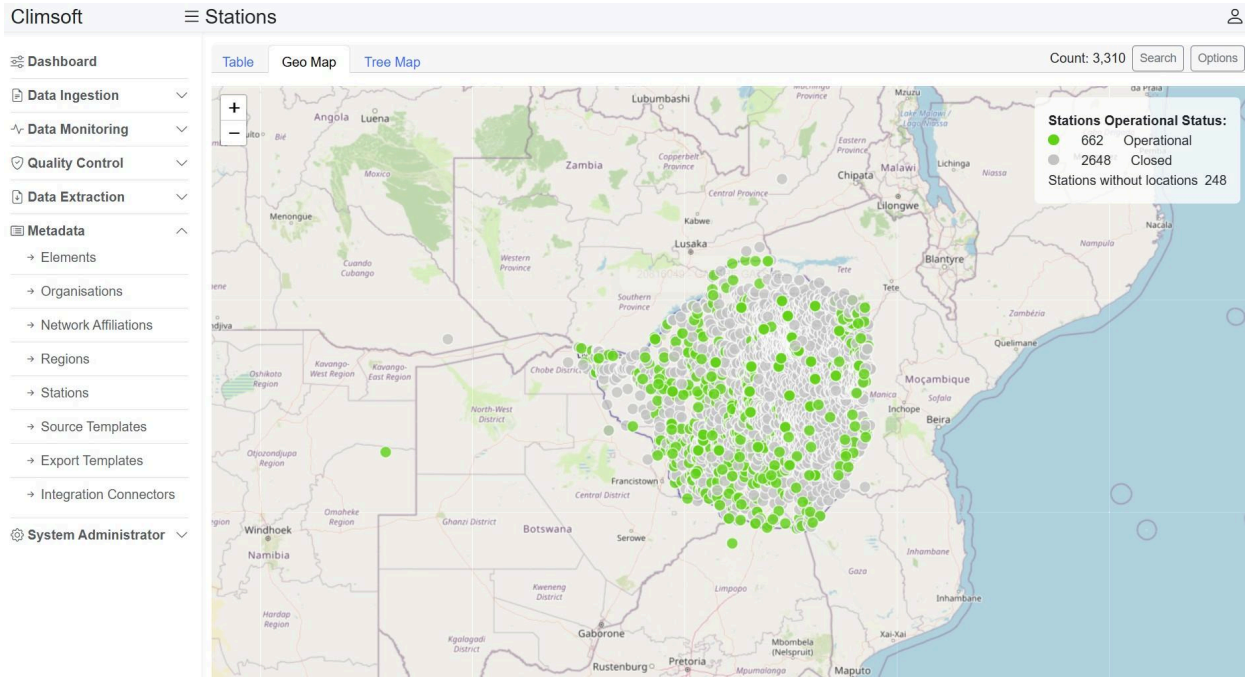
2. Under the table tab, click a station row.

3. Use the form to edit metadata or allocate forms/network affiliations.

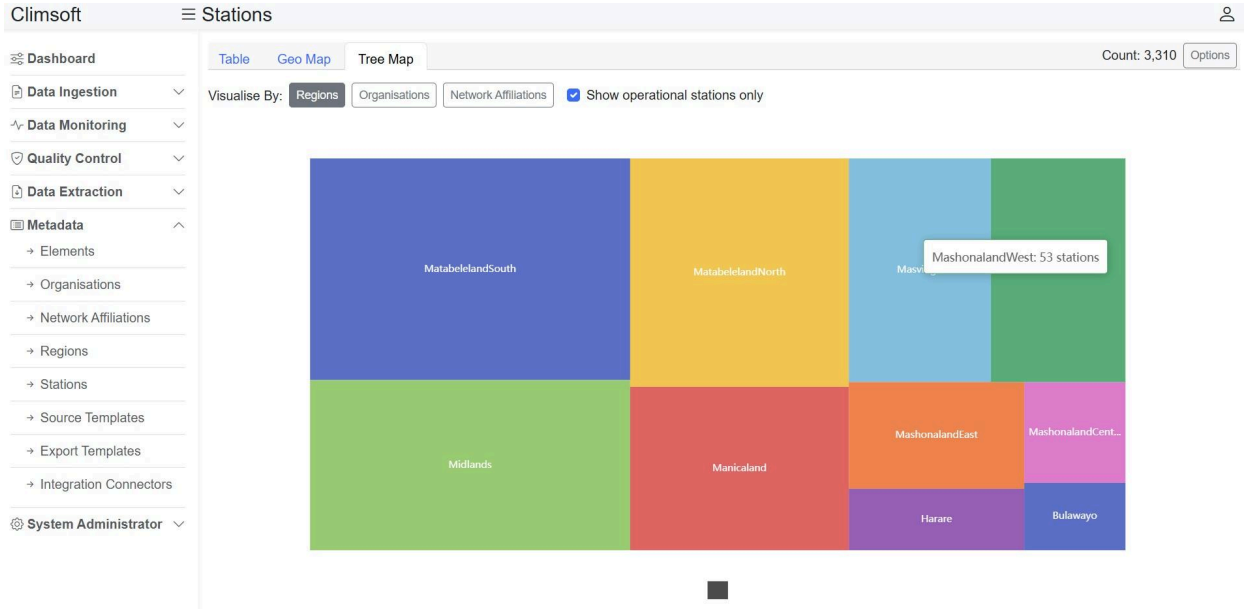
Showing stations in table



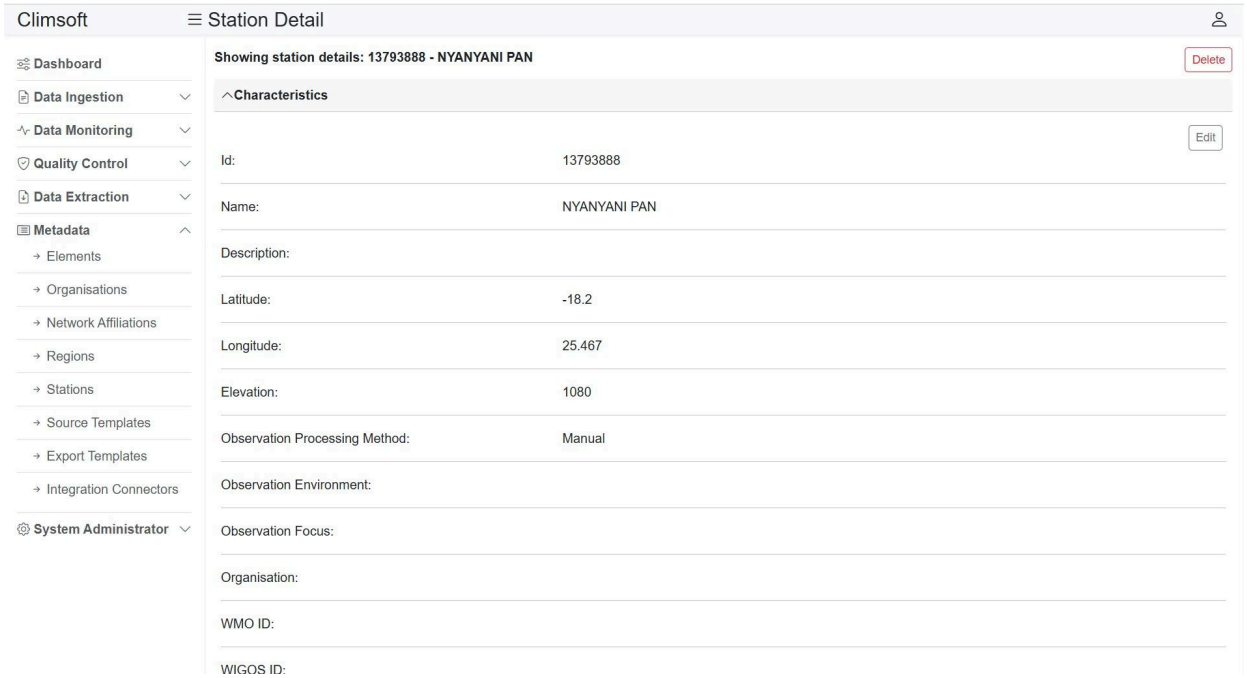
Showing stations on a geo map



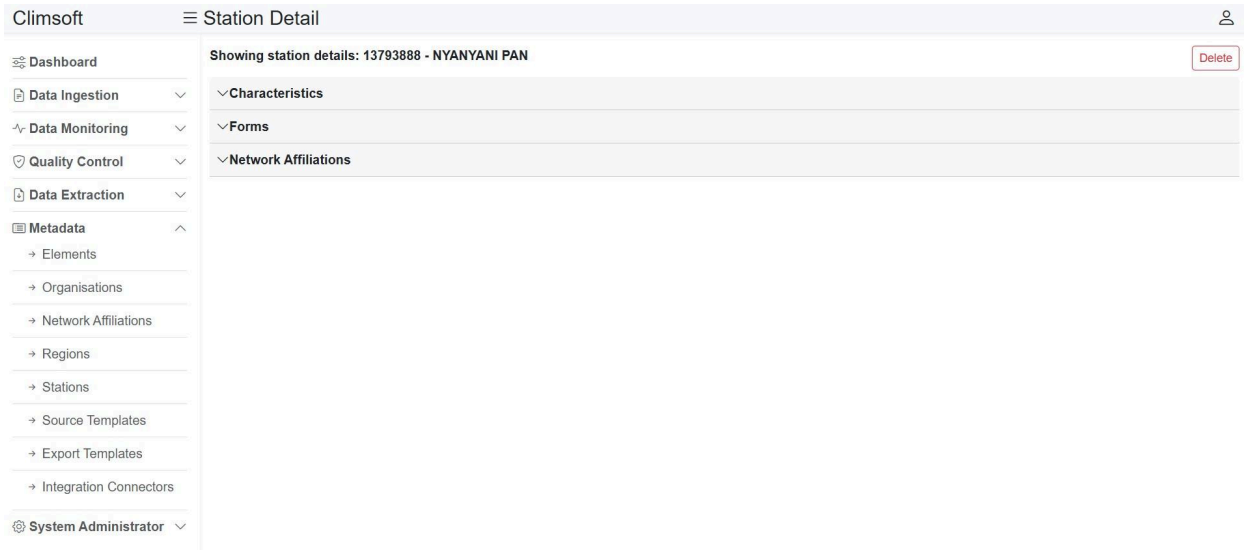
Showing stations on a Tree Map



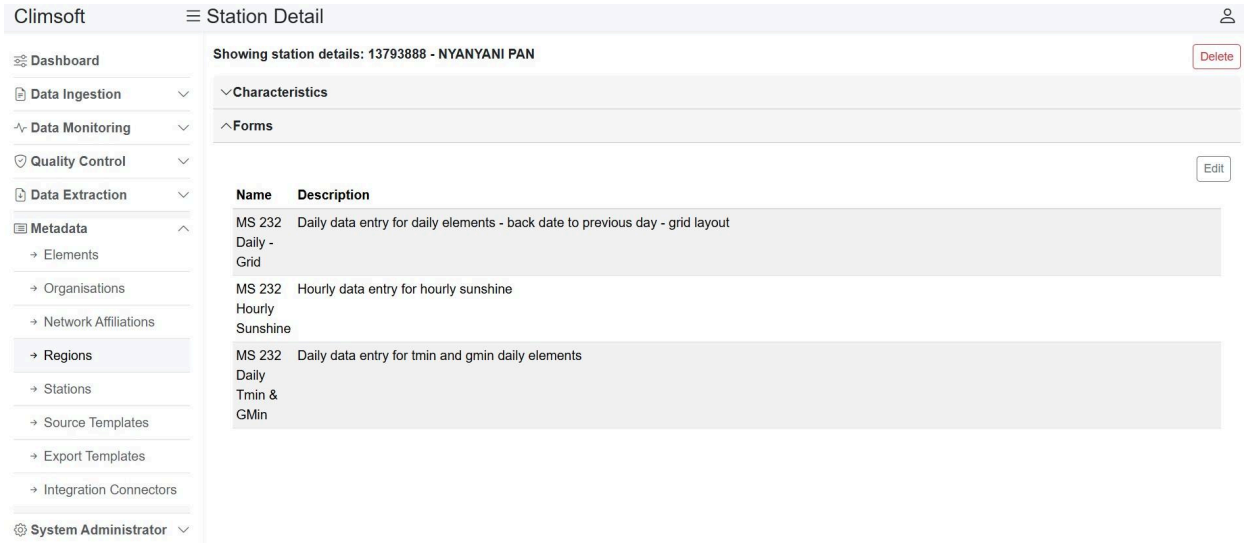
Showing station detail

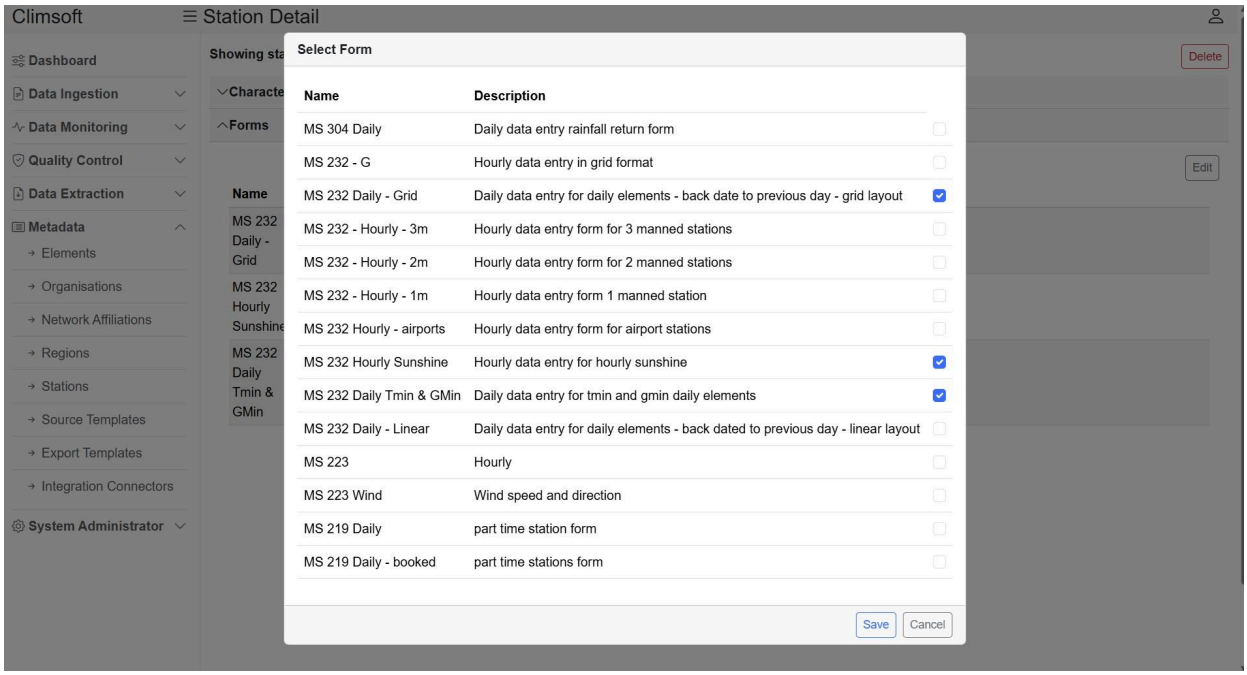


Forms or network affiliations of the station



Allocating station a form



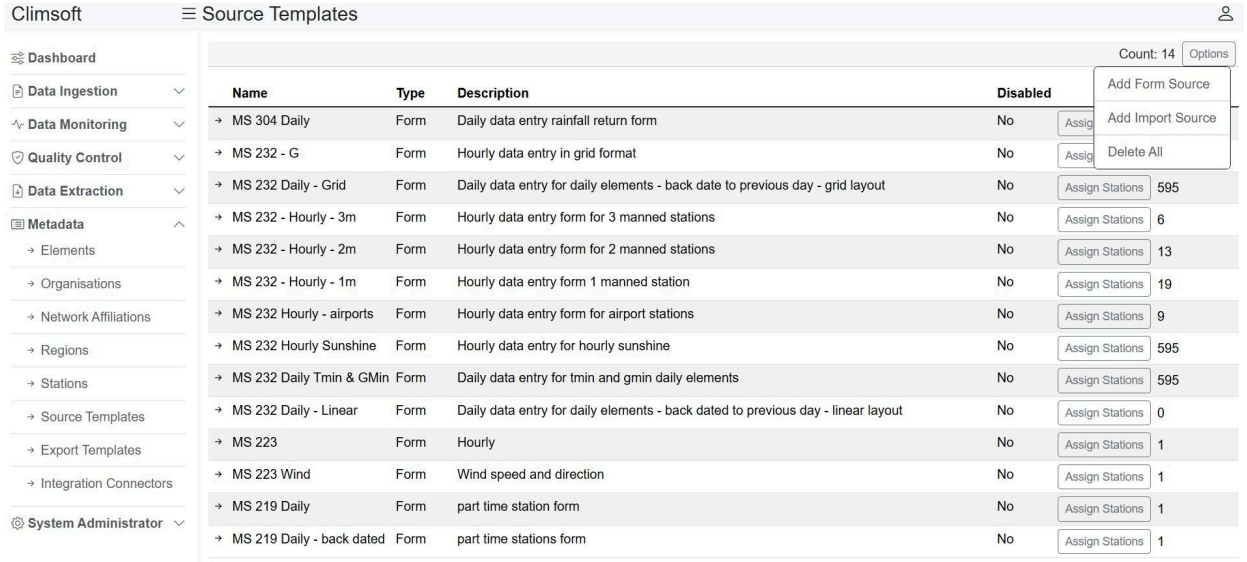


Source and Export Templates:

Navigate to `Metadata > Source Templates` or `Metadata > Export Templates`

Add or edit templates for ingestion and extraction processes.

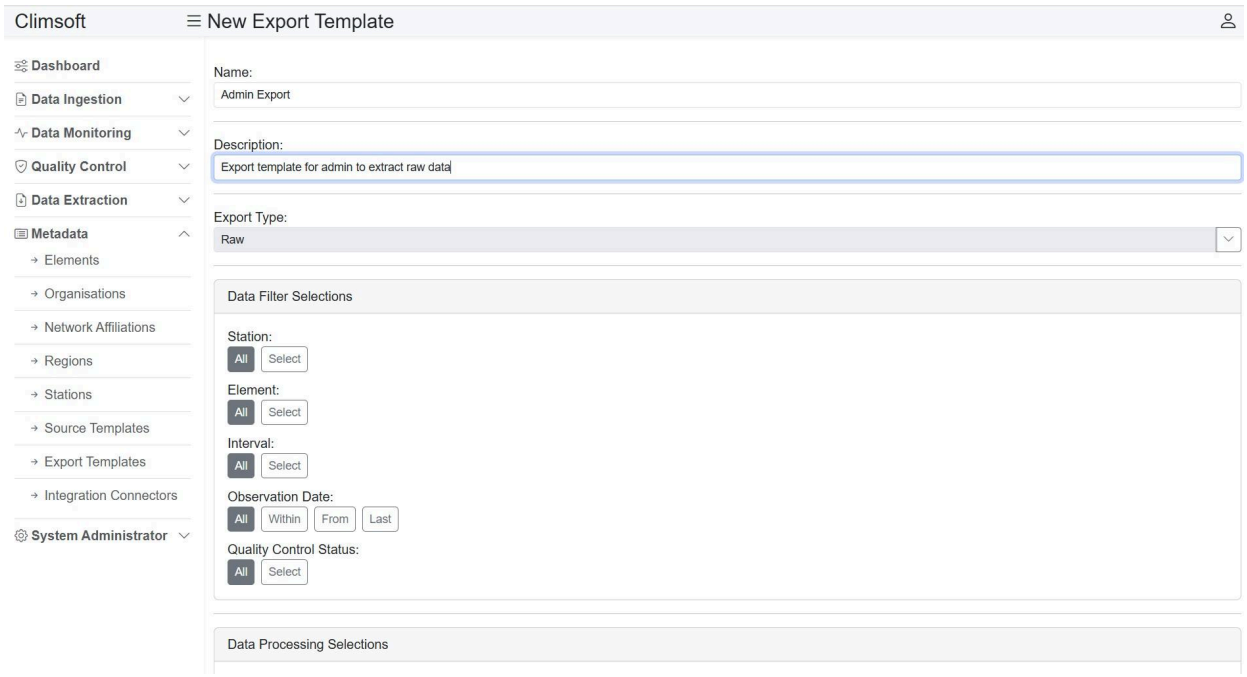
Viewing source templates



Adding or Editing Source template

Viewing export templates

Create or edit export template



System Administrator menu

Managing users and user groups

Individual users and groups are managed by system administrators via the main menu.

User groups can be created to distinguish specific roles and responsibilities, such as:

- Data Observers (e.g. for data entry rights)
- Data Viewers (e.g. for data viewing and export rights)
- Data Administrators (e.g. for full system access to manage data and users)

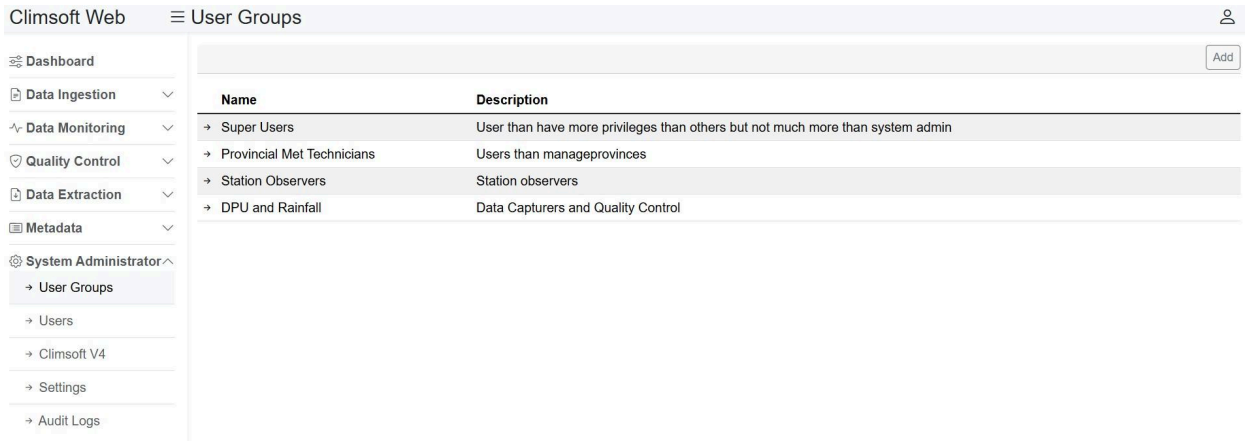
The full range of permissions available to users and groups is:

- Can edit station metadata
- Can enter and correct data
- Can monitor data ingestion
- Can quality control data
- Can export data

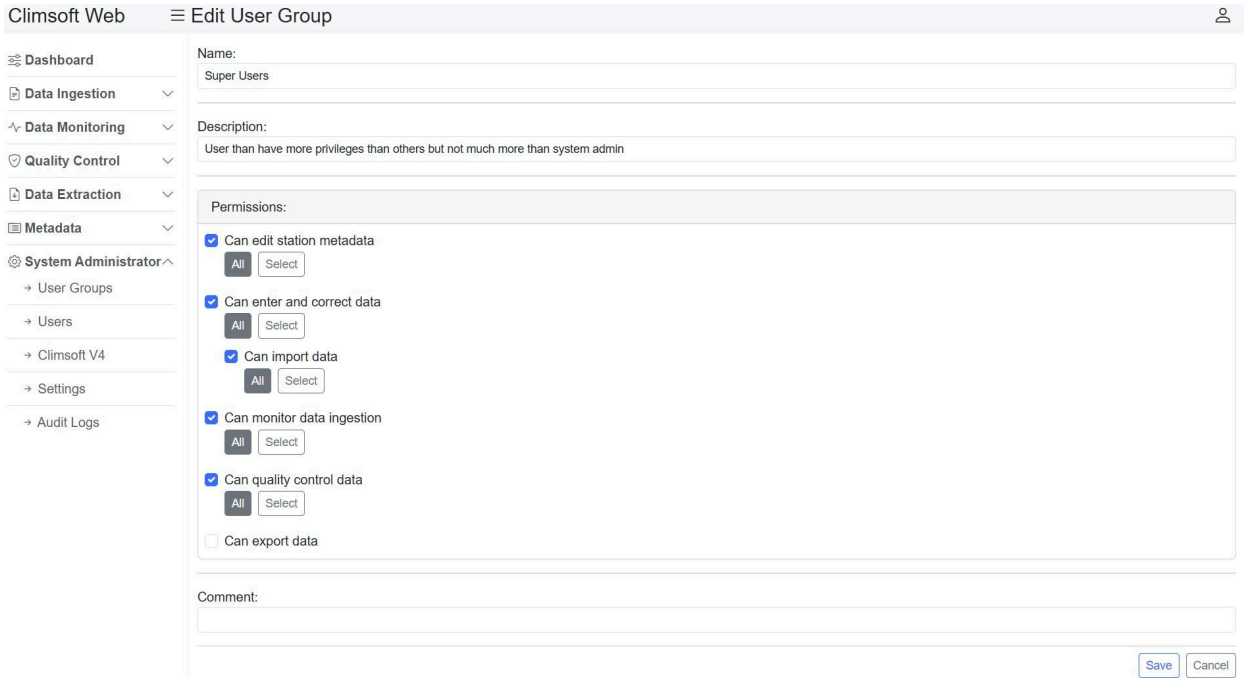
Groups can be created using any combination of the above permissions.

Individual users can then be created and added to existing groups, depending on the type of access required.

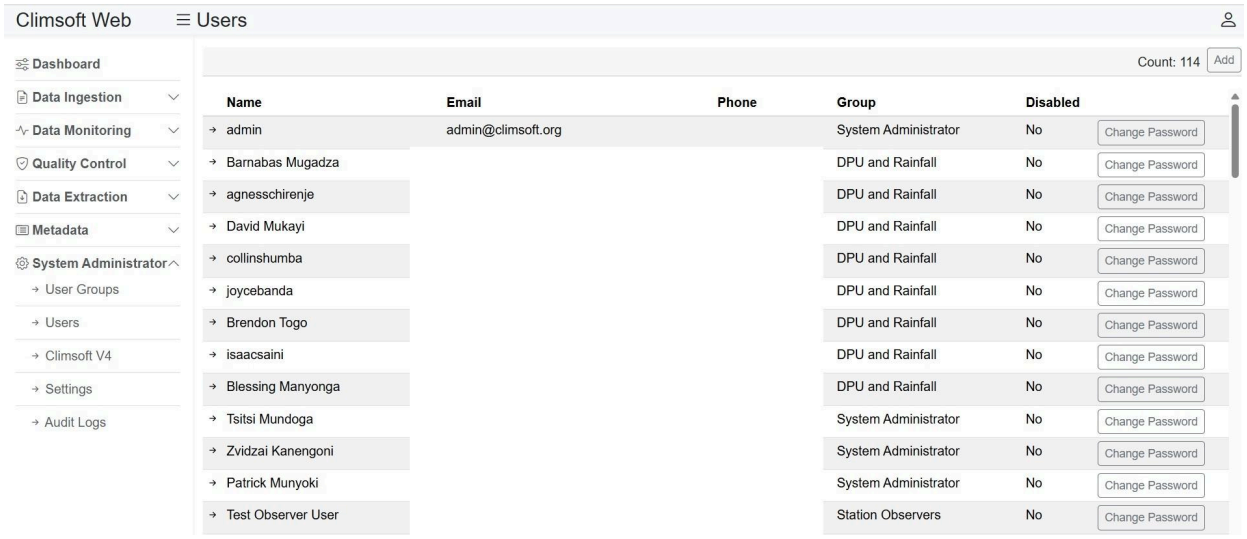
Viewing user groups



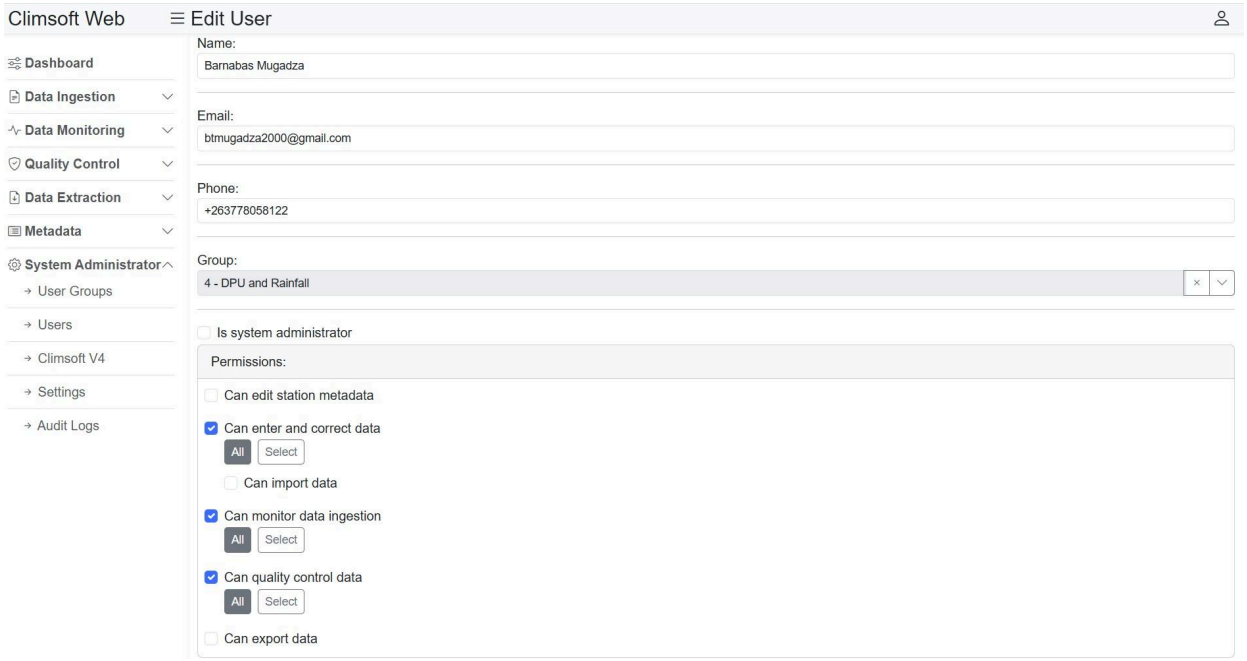
Edit user group



Viewing users



User Details


Climsoft Web
Edit User
Dashboard
Data Ingestion
Data Monitoring
Quality Control
Data Extraction
Metadata
System Administrator
User Groups
Users
Climsoft V4
Settings
Audit Logs
Name:
Barnabas Mugadza
Email:
btmugadza2000@gmail.com
Phone:
+263778058122
Group:
4 - DPU and Rainfall
Is system administrator
Permissions:
Can edit station metadata
Can enter and correct data
All
Select
Can import data
Can monitor data ingestion
All
Select
Can quality control data
All
Select
Can export data